

Petersen's

AUGUST, 1976

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Photographic

Magazine



FOLLOW THE LIGHT
Simple Rules For
Great Travel Photos

HIGH-KEY
PHOTOGRAPHY
All The Tricks
And Secrets Revealed

NEW SLIDE COPYING
TECHNIQUES FOR
SUPERIOR RESULTS

BEGINNING THIS ISSUE:
PhotoGraphic's Color
Gallery Section





Sigma lenses for birds, bees and beauties.

Sigma lenses for nature. It's easy to bring your outdoor experiences home through lenses that respond to the way you see nature. For the tranquility, the colors and the simple excitement of forests, fields, and beaches, we suggest two high-quality Sigma lenses, both eminently affordable: the 70-230mm f4.5 zoom and the 24mm f2.8 wide angle.

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SIGMA
THE LENS MAKER



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COVER

The subtle shadow tones on this building in Annecy, France, give eloquent expression to its silent vigil throughout long, historic years. This quiet play of light and form induced photogra-

pher Paul Slaughter to record the image with a Nikon F2, 80-200mm Nikkor lens and Kodak Kodachrome II Film. He reveals more about his travels in his article, "Follow the Light," beginning on page 40.



ON THE SCENE

THE EDITORS



BROOKS



JACOBS



YOB



SENG



BERGMAN

HOT AUGUST HIGHLIGHTS

About the best thing we can think of to do in August is to sit on the front porch in a rocking chair or a hanging swing and sip mint juleps while watching the neighborhood kids catch fireflies on the lawn. But, fortunately for this issue, our ingenious contributors have come up with pursuits more photographic than idyllic this month. We present the features in our August issue like so many swizzle sticks with which to stir your imaginations before returning to our own cool highballs and the late afternoon sun . . .

Our first such stirring article is **Paul Slaughter's** "Follow the Light," a colorful photodocumentation of the author's current sojourn abroad, coupled with helpful pointers for fellow photographers anxious to get the best pictures possible while traveling with a camera. Paul's a seasoned traveler and photographer, and if you haven't been to Europe for several years or are contemplating a first trip, you'll find his information both practical and up-to-date . . .

In "High-Key Photography" **David Brooks** exposes the difference between a washed-out picture and one that is photographed and printed in a lighter tonal range for effect. His high-key prints are breathtaking, as we're sure you'll agree. The technique is well-worth trying in your own studio or on-location shots . . .

Elsewhere in this issue, **Lou Jacobs** poses the question, "Can a Fisheye Change Your Life?" In this fascinating feature Lou discusses what full-frame fisheyes are available and how to use these amazing wide-angle lenses for a whole new view of the world . . .

Also in these pages, **Parry C. Yob** tells all about how to "Build Your Own System for Improving Color Slide Copies." If your dupes are usually duds, Parry's step-by-step suggestions are bound to help you get perfect copies next time, with a minimum of hassle . . .

Another good do-it-yourself feature, **Walt Seng's** "Blueprint" this month outlines "How to Construct a Right-Angle Print Projection Device." What's that? It's a simple way to set up any enlarger to make poster- or mural-size prints by projecting the negative image on a vertical surface for really big pictures . . .

When photographer **Alan Bergman** wandered into our offices one day not long ago and suggested bringing the entire staff of PhotoGraphic to his studio for portraits, we wondered why he would want to set himself up. What could be more difficult for a pro than photographing another photographer? And photographing a whole crew of magazine staff members—all of whom take photos—had us wondering as to Bergman's sanity! To find out how Alan handled the challenging task, see "PhotoGraphic Road Tests Alan Bergman," page 49 . . .

This month's "Portfolio" is by **Roger Brent**, who uses Kodak Infrared Film to explore an invisible world where familiar things are redefined by the dazzling brilliance of a light that must be photographed for us to be able to see it. Infrared is the radiation lying outside the visible spectrum at its red end, where the wavelengths are longer than those of visible light. Far out? Definitely.

COMING NEXT MONTH:

COLOR POSTERIZATION—Dazzling abstract images.

HOW TO BUILD A CHEMICAL MIXING STAND—A terrific money-saving idea for darkroom buffs.

PLUS:

ELECTRONIC IMAGES—A special section on the latest in video technology.

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NEW YORK

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You're free to probe the limits of your imagination with a Minolta. More than 40 lenses in the superbly crafted Rokkor-X and Minolta/Celtic systems let you bridge distances or capture a spectacular panorama. They range from 7.5mm fisheye to 1600mm super-telephoto, and include some exceptional macro and zoom lenses. Minolta's patented bayonet mount lets you interchange them in seconds without ASA indexing or f/stop realignment.

Whether you want an electronic or a match-needle SLR, Minolta gives you a wide range of models to choose from. With features to match your needs and budget.

Electronic Minoltas have smooth, quiet shutters that automatically adjust speeds up to the instant you shoot for unparalleled exposure accuracy. Three models, the professional XK, the deluxe XE-7 and the economical XE-5 let you select from a host of creative and convenience features such as interchangeable finders and focusing screens, speeds to 1/2000th of a second, multiple exposure capability and built-in hot shoe.

Minolta SR-T cameras offer a broad range of features at remarkably low prices. All have match-needle exposure adjustment, shutter speeds to 1/1000th of a second and Minolta's traditional human engineering for fast, effortless handling. Multiple exposure capability, built-in hot shoe, self-timer, memo holder and film safe load signal are among the feature choices available with the SR-T 202, SR-T 201 and SR-T 200.

Whichever Minolta you choose will help you make the transition from creative vision to captured image as quickly and easily as possible. That's what Minolta handling is all about. And why you and a Minolta soon become inseparable.

For more information about Minolta 35mm SLR cameras, write Minolta Corporation, 101 Williams Drive, Ramsey, New Jersey 07446. In Canada: Anglophoto, Ltd., P.Q.

**Minolta**

First the incredible...



now the impossible.

Announcing the latest accessory for the Olympus System... the OM-2.

The incredible: The Olympus OM-1. When the Olympus OM-1 camera first appeared in the Fall of 1972, the experts called it "incredible." And so it is. It's 35% lighter and smaller than conventional 35mm SLR cameras, yet designed to standards of durability demanded by press and commercial photographers. Its viewfinder is 70% brighter. It's uncannily quiet. And it is the foundation of a total system of photography with over 200 components including motor drive, interchangeable focusing screens, and an optical system ranging from 8mm fisheye to 1000mm telephoto.

The impossible: The Olympus OM-2. It has long been argued that the ideal place to meter light for exposure control is at the film plane itself. In practice, however, that was considered an impossibility in an SLR camera. But when Olympus designers set out to provide an automatic exposure control camera for the Olympus System, they accomplished the impossible. They invented a metering system totally unlike any other and integrated it into the OM camera. This is the OM-2, a 35mm SLR offering both manual exposure control and aperture-preferred automatic exposure control, with shutter speeds controlled electronically in both modes, and weighing a scant 10 grams (the weight of a nickel) more than the OM-1.

Before the OM-2: In conventional automatic exposure control systems light sensitive cells located

above the mirror near the prism read the light entering the camera through the lens. These cells are coupled to a viewfinder display that informs the photographer as to which shutter speed (or aperture) the automatic system has determined. They are also coupled to a memory circuit. When the photographer pushes the shutter release, the mirror swings up and the light sensitive cells are blinded. The memory circuit determines



the exposure based on the light reading it received just before the exposure was made. If the light changes during the exposure, the system cannot compensate.

The OM-2 Breakthrough: But the OM-2 does not need a memory circuit, for it is able to take a continuous light reading throughout the actual exposure. A pair of super-sensitive silicon blue cells faces the film plane and reads the light falling on the shutter curtain

and the film itself. If the light changes after the exposure begins, the OM-2 automatic exposure control system calculates the amount of light reaching the film and makes adjustments in exposure time instantaneously. Meter readings at 1/60th or faster are center-weighted because the cells read the light reflected from a computer generated pattern on the shutter curtain. During exposures of 1/15th of a second or

slower, the system switches automatically to an averaging mode as the cells read the light reflected from the film surface. Between the 1/60th and 1/15th, the reading is a combination of center-weighted and averaging.

Extended exposure range: Total exposure range for the OM-2 in automatic mode is 1/1000th of a second, to about 60 seconds, a much greater range than in other automatic systems.

Two sets of cells: For the convenience of the photographer only, a pair of CdS cells above the mirror (as in conventional cameras) regulates the viewfinder display to show the approximate shutter speed selected by the automatic circuits. These CdS cells are also the metering cells for the manual exposure control mode.

The extreme example: Using the OM-2 in automatic exposure control mode with the OM system motor drive, the number of sequential exposures made will vary from five frames per second to one frame about every sixty seconds as the system reacts automatically to varying light conditions.

A unique system: The introduction of the OM-2 means that the Olympus System is a complete system of photography with two camera models, one offering automatic and manual exposure control, the other with manual zero system control, both accepting every element in the system. The Olympus OM System is the first system of photography that can make this claim.

For a complete description and specifications of all components of the OM System, including the OM-1 and OM-2 cameras, please write to Dept. 16.

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OTHER VOICES

EXUBERANT FANS

Every month I look forward to receiving my copy of PhotoGraphic. As a novice in photography, I found it a closed field, unwilling to give up basic information to the uninitiated. Then came your magazine! The information I was looking for was at my fingertips. Even now as a professional, I often look to back issues, and what I'm looking for is usually there.

With the May, 1976 issue I received more than I had ever hoped for in a photography magazine: "On the Scene," pictured only women contributors; "Club Close-Ups" covered women's clubs; Linda Wolfe's sensitive portfolio featured women subjects; careers for women in "One to One" were discussed, and most exciting of all were Clara Petzoldt's fantastic photographs (in my opinion, some of the best you've ever published). All these things by and about women!

But that's not the best part. What makes me want to stand on my head or shout for joy is the fact that you didn't splash the obvious all over the cover, lead-in pages and throughout the magazine. You merely published good articles, commentary and portfolios by competent, professional photographers who happen to be women, and that makes me very happy.

I will not stand on my head or shout for joy (not to excess, anyhow), but I will thank you from the bottom of my heart. (I will also continue to subscribe to your magazine and continue to broadcast its praise to everyone I meet.) Photography is a natural career for women—the May issue proved that fact.

Mary Lou Dolhancryk
Columbiana, Ohio

I am not writing for advice or to give criticism but rather to praise and thank you. Through you, I have expanded my knowledge of photography to a fair understanding of the vast workings of the medium.

As a member of Associated Photographers International (API), I follow their newsletters and am trying to follow their guidelines for becoming a full-time photographer.

I am presently a student of Walt Seng, a contributor to PhotoGraphic, and find him an excellent photographer

as well as teacher. I look forward to his "Blueprint" articles and hope you continue to publish his work.

John Cairns
Coraopolis, Pennsylvania

FAN???

I have purchased your magazine (May, 1976 issue) for the first time. Being impressed by its contents, I was ready to enter my subscription; that is, until I noticed a certain detail.

Each of your features was created by a female. The same occurred in "Gallery '76."

I, speaking as a member of the male society, demand equal representation in your next issue!

Hugo L. Martinez
N. Miami Beach, Florida

You got it, Hugo.—Ed.

MINUTE CALCULATIONS

I found "Calculator in the Darkroom," March, 1976 issue very interesting, although it contains a basic error that I feel should be brought to readers' attentions.

The Inverse Square Law assumed by the authors for computing exposure times at different lens board heights is approximately correct for magnifications greater than about 8X. For smaller magnifications, however, there is a drastic change in the relationship. The general formula which relates the exposure times at two different magnifications is:

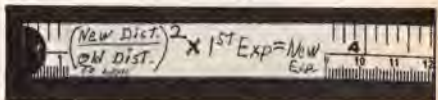
$$t_2 = t_1 \frac{(1 + M_2)^2}{(1 + M_1)^2}$$

Thus, in the authors' example on page 63, where change is made from 4X to 8X lateral magnification, $t_2 \div t_1 = 3.24$ and not 4.84 as stated in the article. Following the authors' instructions, a color print would be exposed for about 150 percent of the actual time required and would be almost too dark for acceptability.

Thomas C. Blow
Adelphi, Maryland

BARGAIN CALCULATOR

Because I do a fair amount of printing in both black-and-white and color, I was very interested in the article, "Calculator in the Darkroom," March, 1976 issue. Since I already had a calculator, I invested 70¢ in a tape measure, which is white on one side and yellow on the other, making it easy to read both sides under an amber safelight.



Having a poor memory for formulas (does the old or new distance go into

(Continued on page 92)

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GUIDE LINES

PAUL R. FARBER

OUT OF THE MOUTHS OF LITTLE BOTTLES



□ Y'know, it never ceases to amaze me. Through the years, for almost any photographic problem imaginable—from darkroom leaks to camera shake—there seems to be a mysterious

little bottle, the contents of which are guaranteed to console, conceal or cure. Frankly, after falling victim to many of these mysterious bottles of packaged and patented panaceas, I must admit to a certain amount of earned skepticism whenever I come across the latest concoction and attendant claim.

Recently, I opened a box sent to me by a firm identified as Min/Max, a firm not too well-known in the photographic scheme of things, and certainly not one that, initially, inspired confidence by virtue of the contents of that singular package. It was not without a shudder or two that I unpacked four small bottles, each one more mysterious than the last.

The bottles were labeled and identified as: Flexitemp, Increase II, Krom-X and Factor 8. Individually, each label identified the specific use. Flexitemp was to be used for variable temperature processing of C-41 compatible films; Increase II was for extended film speeds for color negatives; Krom-X was for extended film speeds with transparency films, and Factor 8 was for extended film speeds with black-and-white films. Each one, in turn, piqued my curiosity to its limit. There I was, once again, hung up on mysterious-looking bottles.

As I said, having earned the right to a certain amount of healthy skepticism by virtue of prior experiences, I must admit that I was more than pleasantly surprised by the results I obtained with the products. For example, taking them in their mentioned order, Flexitemp proved to be a great additive for Kodak's process C-41. When used at the rate of one part additive to 100 parts of developer, I was able to produce highly satisfactory color negatives over a working range of 73 to 90°F.

Considering that ordinary mortals have incredible difficulty in maintaining Kodak's admonition to process only at 100°F., Flexitemp made it possible for me to process my color negatives over a

reasonable temperature range. The only additional recommendation that I can add would be to stay with one of the lower working temperatures and use it consistently if repeatable color packs are to be enjoyed. Different working temperatures produce differences in filtration packs. Flexitemp, I thank you.

Moving on to the second product, Increase II, I was able to expose my color negatives at speed ratings up to E.I. 1000. That's what I said, E.I. 1000! Not having all the space in the world to

implied uses that I was unable to try because of deadlines. However, I fully intend to really explore all of its possibilities and, in the near future, promise to give you a full report on what I learned. In the interim I suggest you try it for yourself to fully appreciate its possibilities.

All of which brings me up to the fourth product, Factor 8. This is made expressly for use with black-and-white films, and the claims were staggering, to say the least. Factor 8, it was claimed,



Four little bottles, the contents of which can be used to achieve remarkable results in increased film speed when used with color negatives, color slides and black-and-white films.

detail my experiments with this product, all I would like to say is that Increase II produced color negatives exposed at high-speed ratings that produced very good color prints. No, I would not say the prints represented optimum color balance (although Min/Max claimed otherwise). Slight color shifting could be observed. However, I'm a stickler for color balance and get upset when I detect a mere .025 color imbalance. However, if it boils down to a case of a print with a slight color shift or no print at all, well, there's no real decision to make. I'll opt for the print every time. Increase II does work, and it works well enough to be considered part of every color negative worker's arsenal of tricks. Incidentally, Increase II can also be used to process color transparencies to a negative—negatives that have been exposed at exposure indices that approach 1600!

Speaking about color transparencies, the third product, Krom-X, proved to be as effective with slides as Increase II was with color negatives. When added to the first developer in Kodak's process E-3 or E-4, Krom-X allowed transparency material to be exposed up to indices approaching 1200, without noticeable loss of quality. There is no detectable increase in contrast, virtually no color shifting, and R-type prints from these slides can be enlarged up to 18 diameters before grain becomes noticeable to the unaided eye. This product

was an additive to be used with a conventional developer, after which, films could be push-processed without grain or contrast buildup to achieve speed increases on the order of eight times!

Using the additive is simple enough: eight milliliters per quart of working developer (Kodak's D-76, HC-110, etc.) are added, and the films are rated at twice their normal film speed index. Then the film is push-processed for 50 percent of the normal developing time. Again, using eight milliliters per quart of working developer and increasing the normal processing time by 100 percent results in a two f-stop increase in film speed. Adding 10 milliliters per quart of working developer and tripling the normal developing time results in a three f-stop increase in apparent film speed.

The results were staggering. Films actually showed *less* not more grain. The grain pattern was tight, and negatives enlarged easily. Contrast was *down*, resulting in negatives that could be printed on normal grades of enlarging papers. For the available light buff, Factor 8 represents one of the most remarkable additives I've ever used. Even photos taken by the light of a street lamp showed remarkable detail in both shadows and highlights. This one is a winner!

For more information, availability and prices, see your local camera dealer, or write to Min/Max, P.O. Box M, Harbor City, California 90710. □

A winner by SMP Grad, Denford Jones



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and the skills to start a part-time business — doing professional quality work — to buy equipment you always wanted.

Or, like literally thousands of SMP students before you . . . you might choose to make your hobby into your profession, and open a full-time business of your own.

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18 Kodak films exposed.

		ASA speed	graininess	resolving power	process	sizes available
COLOR SLIDE FILMS	Kodachrome 25 film (daylight)	25	extremely fine	high	K-14 (lab only)	135-20, 135-36
	Kodachrome II professional film (type A)	40 (3400 K)	extremely fine	high	K-12 (lab only)	135-36
	Kodachrome 64 film (daylight)	64	extremely fine	high	K-14 (lab only)	135-20, 135-36, 126-20, 110-20
	Kodak Ektachrome-X film	64 (daylight)	very fine	medium	E-4 (lab or user)	135-20, 135-36, 120, 126-20, 110-20, 127
	Kodak high speed Ektachrome film (daylight)	160	very fine	low	E-4 (lab or user)	135-20, 135-36, 120, 126-20
	Kodak high speed Ektachrome film (tungsten)	125 (3200 K)	very fine	low	E-4 (lab or user)	135-20, 135-36, 120
COLOR NEGATIVE FILMS (for prints)	Kodacolor II film	80 (daylight)	microfine	medium	C-41 (lab or user)	135-20, 135-36, 120, 126-12, 126-20, 110-12, 110-20, 620, 116, 616, 127, 828
	*Kodak Vericolor II professional film, type S	100 (daylight)	extremely fine	medium	C-41 (lab or user)	135-20, 135-36, 120, 220†, 620, sheets
	*Kodak Vericolor II professional film, type L	80 (3200 K) (1/50-1/5 sec)	extremely fine	medium	C-41 (lab or user)	120†, sheets
BLACK-AND-WHITE FILMS (for prints)	Kodak Panatomic-X film	32	extremely fine	very high	(black-and-white developers)	135-20, 135-36
	Kodak Plus-X pan film	125	extremely fine	high	(black-and-white developers)	135-20, 135-36
	Kodak Verichrome pan film	125	extremely fine	high	(black-and-white developers)	120, 620, 110-12, 127, 126-12
	Kodak Tri-X pan film	400	fine	high	(black-and-white developers)	135-20, 135-36, 120, 126-12
SPECIAL-PURPOSE FILMS	Kodak recording film 2475 (Estar-AH base) (extremely high-speed black-and-white film)	effective 1000-4000	coarse	medium	(recommended black-and-white developers)	135-36
	Kodak Royal-X pan film (extremely high-speed black-and-white film)	1250	medium	medium	(recommended black-and-white developers)	120
	Kodak high contrast copy film 5069 (very sharp black-and-white film for making greatly reduced copies. Can be used as a continuous-tone film with special processing)	64 (tungsten)	extremely fine	ultra high	(recommended black-and-white developers)	135-36
	*Kodak Ektachrome infrared film (false-color slide film)	100 (daylight, w/#12 filter)	fine (with process EA-5)	medium (with process EA-5)	ME-4 EA-5 E-4 (lab or user)	135-20
	*Kodak high speed infrared film (black-and-white negative film)	50 (daylight, w/#25 filter)	moderately coarse	medium	(recommended black-and-white developers)	135-20

You may wish to discuss with your photo dealer the availability of some films, such as the special-purpose films listed above.

*Intended mainly for professional use. Consult film carton or instruction sheet for proper storage and processing information. † 5 rolls per pack only.

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CAMERA ON CAMPUS

ROBERT ROUTH

PHOTOGRAPHY EDUCATION—A PATH TO TOTAL LEARNING?



□ "I really believe that for the first time in the history of man we are in the position to raise, develop and cultivate truly super individuals—individuals who will far exceed 'me' in their total

development, in their total capacity to understand each other and to appreciate each others' cultural achievements. No other society in the history of man has had what I call 'the infinite vocabulary' to express itself. That, in effect, is what we have in the visual communicative mode that is available now," John L. Debes III, commenting informally about concepts presented at the Eighth Annual Conference on Visual Literacy in Nashville, Tennessee. Sponsored by the International Visual Literacy Association (IVLA), this organization of more than 200 members was originally founded by Debes, Dr. Clarence Williams and a group of educators and scientists as a result of the concern of educators for the influence and potential of communication.

The so-called "two-brain" concept was included as an acceptable base for a significant number of presentations at the conference. At the risk of oversimplification, some researchers regard the brain as a unit separable into two hemispheres, the left and the right, in which distinguishable functions rest: verbalization in the left, visualization in the right. It is not merely the identification of the functions of these hemispheres that is significant but their relationship to each other, the understanding of which is believed by many researchers to be of overwhelming importance to theories of education.

Current educational practice underemphasizes the development of the right, visual hemisphere, even though research suggests benefits from a more equal development of these two capabilities. Traditional education tends to favor the verbal development of the student, as this seemed to best answer the needs of society, to prepare him to become a useful member of that society. Visual literacy people generally agree that ignoring this visual learning capacity is a tragic waste of human po-

tential. Development of the visual hemisphere is critical to the many students (some research indicates 60 to 70 percent) who appear to favor this hemisphere, upon which their future learning may well depend. Development of the hemispheres simultaneously, thereby mutually enriching each other, through a reasonable educational program could result in the development of the "super individual."

I asked Debes how the results of this research might be educationally useful to the photography teacher. He com-



mented, "I think the first thing I would do would be to lay down for myself some kind of general goal to attempt to increase the awareness in every student that what he was learning was communication, which is transmitting meaning from one human body to another; that the rules for being a good communicator in many ways are the same, whether they refer to communication with pictures or sequences of pictures, words or sequences of words or actions or sequences of actions. It is important that the student learn how to find within himself the best way to express what he means. Photographic technique, therefore, is important for his mental growth only to the extent that it helps him find and express those meanings in ways that are effective insofar as other people are concerned. What is important is the development of the whole person, the development of all his communication skills, not just his verbal ones and not just his visual ones."

Debes continued, "I think very few people who are teaching photography at the high school level are addressing themselves firmly enough to some of the intellectual kinds of growth that can be cultivated in students. The thing you are after is the experience that every student is capable of extending beyond himself, whether visually or verbally. So in any class I teach in communication, I

deliberately say to students: 'I prefer that you begin by being visual; i.e., think of whatever it is you want to say and say it visually first.'

"I think that all AV and photo people in the schools would do themselves and all education a service if they would emphasize over and over again that pictures are a way of saying things; they are not just images of Mrs. Roosevelt or the Eiffel Tower or whatever. When something is put in a frame or a sequence of frames, that signifies an intent to say something, a particular kind of thing. It is communication, and certain elements are there because they are supposed to be there. As soon as social studies people and English people understand that a picture is not a representation of something, but is indeed trying to say something about something else, then we are getting somewhere. When educators become aware of the large number of students who are visually oriented (by early television experiences, for example), perhaps sufficiently visual that many cannot succeed without being visual first, and let them express themselves using pictures as metaphor, making it possible for them then to express themselves verbally better, then educators will be doing both the students and themselves a great service."

These are some of the many ideas gleaned from numerous contacts throughout the educational community by John Debes, enthusiastic and vocal spokesman for the IVLA.

In my opinion, it is a mutual loss that the International Visual Literacy Association and photography instructors organizations seem unaware of the goals and aims of each other. I feel the IVLA has much to offer education in general and photographic education in particular, for in their research data lies the authentication of the enlightened photo teacher as an important, perhaps essential, link between the visual and the verbal worlds contained in each of us. This idea is not exclusive to the few in photo education who intuitively sense photography's intrinsic worth but is budding in the minds of an ever-increasing group of education specialists and should be of concern to every photo teacher. To default to a rash of "new" photography experts fresh in the discovery of photography's merits in the whole development of the student would be a tragic loss to existing photo programs of a valuable educational opportunity. This loss is caused by a failure to see and shape the destiny of photography by focusing existing expertise on pressing new visual concerns.

Information concerning the IVLA may be obtained by writing the Center for Visual Literacy, Gallaudet College, Washington, D.C. 20002. □

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SELF-ASSIGNMENT

BEN HELPRIN

FAMILIARITY BREEDS CONTEMPT



□ I'd like you to try a simple test. Make a drawing, from memory, of the face of your watch. The drawing can be rough, but it should contain all the details (i.e., how each hour is numbered or marked, the exact shape of the watch's hands, any words printed on the face of the watch, etc.) It is important that you do not look at your watch until after you have finished the drawing. Then check the completed drawing against the watch. The probability is extremely strong that the drawing will contain at least one or more inaccuracies or omissions.

The purpose of this test is not to gauge your powers of observation but to demonstrate the fact that familiarity with an object does not guarantee a full awareness of that object's visual appearance. In fact, the more familiar we are with an object, the less likely we are to see and appreciate its purely physical visual attributes.

We're bombarded with so many visual images that we simply don't pay much attention to them. We rarely see things in depth. We glance at an object, identify it and then (unless the object can't be identified or exhibits some unusual characteristic) tend to visually ignore it. Furthermore, we tend to observe an object's function rather than its visual nature. In looking at your watch, for instance, you "see" the indicated time of day without really paying much attention to the watch's other visual characteristics. In such an instance the old adage, "familiarity breeds contempt," proves true. Familiarity with an object can lead to a visual contempt that prevents us from taking the time and effort to really see and appreciate the object's nonfunctional, purely visual attributes. Yet these abstract attributes (i.e., the object's form, shape, texture, color, etc.) are the basic elements of pictorial excitement. Learning to recognize, separate and identify these attributes is an important part of pictorial vision. Thus, this month's self-assignment: *Create an interesting photograph by pictorially isolating an exciting visual attribute of an otherwise ordinary, seemingly unexciting subject.*

The assignment involves two major steps—observation and isolation.

Observation: Take a close look at the ordinary, everyday items that surround you. Familiar objects such as kitchen utensils, appliances, doorknobs, faucets, telephones, pieces of furniture, etc., often contain a visually exciting element that we have ignored. In viewing the object try to forget everything you know or feel about it. Make believe you have never seen it before and know nothing about its function or use. Con-



To create this striking abstract photograph student Mark Kelley used silhouette backlighting and high contrast printing paper to isolate the shape of a dark piece of driftwood. He also used a close viewpoint and "upside-down" print presentation to force a loss of subject recognition and allow the abstract quality of light to become the center of interest. ©Mark Kelley.

cern yourself with the object's visual appearance, not with what it is or does.

Separate and analyze each individual aspect of the object's appearance. Is its shape or a particular part of its shape visually exciting? Is its texture interesting? Does the object contain an exciting curve, angle, surface fluctuation, linear pattern or juxtaposition of colors?

After you have carefully studied the object, view it through the camera. Try different viewing distances, angles and focus adjustments. Note how these changes affect not only what is seen but, more important, what is eliminated and not seen. Pay particular attention to the fact that when an unusual angle or a close-up viewing distance produce an image in which the object is not readily recognizable, the object's abstract visual qualities appear to become more prominent. Above all, remember that your photograph does not have to look like the original object. You have the artistic freedom to create an image that presents only an isolated, nonrepresentational visual attribute of the object. Your goal is pictorial excitement, not representation.

Isolation: Once you have recognized

and identified a particularly exciting visual element, you must isolate and capture it. Close-up or macro photography is often used for pictorial isolation because the technique provides a limited view that not only serves to isolate a particular curve, shape, form or other visual attribute but that also serves to eliminate many of the distracting visual details that are not contributing to the pictorial excitement. Furthermore, close-up techniques often produce an image in which the original subject matter becomes unrecognizable. This lack of subject recognition is an advantage because it prevents the viewer from interjecting his own personal, subjective feelings about the subject and allows him to more fully appreciate the abstract, purely visual elements.

Almost any camera can be used for close-up photography. A special macro lens will provide a wide focusing range and extreme sharpness capability, but such a lens is not a necessity. Excellent results can be obtained using less expensive accessories such as bellows or extension tubes. Even the simple and relatively inexpensive plus diopter or "porta" accessory lens attachments will yield acceptable results. Porta lenses do tend to slightly degrade the image quality, but this slight loss in quality will not be noticeable if the photograph contains a lot of visual excitement.

Other photographic techniques can be used separately or in combination with macro photography for purposes of pictorial isolation. Lighting, for instance, is an extremely effective isolation tool. The area of the light can be carefully controlled to isolate specific parts of the subject. The direction of the light will also have a pronounced effect. Silhouette backlighting will isolate an object's shape. Sidelighting will isolate an object's texture.

Focus control can also be used creatively. A limited area of sharpness, produced by careful focusing and a wide depth of field, will isolate a specific section of an object's shape or form. Throwing the entire image out of focus will deemphasize the form and shape of a subject and isolate its color.

Many photographic techniques can be used for purposes of pictorial isolation. In the final analysis, however, your choice of technique will depend upon the nature of the visual attribute you wish to isolate and the nature of the visual attributes you wish to deemphasize or eliminate. Once these attributes have been identified, the techniques needed to isolate one and eliminate the other will become self-evident. Whatever techniques you use, this assignment should help to improve your photographic vision and, hopefully, provide you with a number of exciting and unique photographs. □

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IN JUST SECONDS

JOE NOVAK

SX-70: TECHNOLOGY TO CREATE BEAUTY



□ The benefits the world has enjoyed from Fox Talbot's invention of the negative-positive process in photography have not come without a price. We've become accustomed to relating

final images to memories of events long past. Unfortunately, this postponement has often resulted in images that lack the conviction we had at the moment we pressed the shutter release. We are still amazed at the quality of Daguerreotypes produced more than 100 years ago with the most primitive of equipment. The almost ethereal delicacy of that particular medium is only part of the reason why so many memorable photographs were produced. The plates were processed at once, and a positive image was soon viewed in the presence of the subject. The pictures were good because they had *immediacy*.

A century went by before a photographic process of comparable magic was produced. I am referring, of course, to the Polaroid SX-70 system. No one who has had the opportunity to view the finest work that has been done in the new medium will question the validity of the comparison. Both Daguerreotypes and SX-70 prints are unique originals whose finer qualities are virtually irreproducible. At a time when images come cheaper by the dozen, when the concept of first-generation art is fading rapidly in the eye of a public more accustomed to viewing reproductions of reproductions, the emergence of SX-70 is refreshing.

The SX-70 film unit is a complex 15-decker sandwich that is obviously better to look at than to eat. Although each of these layers is there to perform a specific technical function, it is fascinating to reflect upon how the necessity of those layers has served a more general aesthetic goal. Separating the negative and positive portions of the film sandwich is a layer of dazzling white titanium dioxide. In addition to shielding the negative from view, this layer reflects light to the eye *through* the color image and the remaining positive layers. Anyone who has ever had a print made from a color slide is aware of the dif-

ference in brilliance of an image viewed with light that is passing *through* it and one viewed with light *bouncing off* it.

In this respect, an SX-70 print is a hybrid of slide and print, presenting an image of unusual luminance and depth. That is why the SX-70 sandwich *is* the image. In no way can the effect be wholly duplicated. Fine SX-70 originals are treasured, and it's likely that they



Delicate rendition of detail in SX-70 print is only one of the qualities in these unique originals reminiscent of the Daguerreotype.

will be for many years to come. The newly developed metallized dyes incorporated in the film are probably the most stable ever produced. Their ability to resist fading far exceeds that of conventional color prints. Finally, the image is protected from environmental irritants by the sealed film unit of which it is part. On some dark, smog-filled day in the future, it might be that the only color prints still around are SX-70.

But the SX-70 technology did not come easily. To cite just one example, it took about two years for a team of chemists just to produce the opacifier, the turquoise chemical screen that enables the film to develop before your eyes in light a billion times as bright as that which formed the image. On the day they finally succeeded, they cheered and ate cake.

The film, as impressive as it is, is only part of the magic. The design and manufacture of the camera presented such a mighty challenge that the fact it was produced at all is a tribute to a man's determination to realize his dream. That dream—"absolute one-step photography"—had occupied Dr. Edwin Land for over a quarter-century. Even the formidable technology of the '70s had to be pushed to the limit to make the camera a reality. Land calls it "forced evolution." He and Polaroid challenged their suppliers to step beyond what had been the limits of their capabilities. In the process a little motor company became a big motor

company, without sacrificing the quality that had won the job. Meeting the challenge, they developed a high-efficiency, high-torque miniature motor that would spin at 12,000 rpm. Newly developed commutator finishes insure an instant start even after long periods of nonuse.

Electronics firms designed and manufactured integrated circuit assemblies far more complex than anything they had previously attempted and then found ways of mass-producing them at low cost. The three circuit modules that govern motor, shutter and flash are the electronic equivalent of several-hundred transistors. The camera is literally a folding computer that senses each phase of its own operation as it is happening and utilizes this feedback to control the operations as they continue. It was Dr. Land's insistence upon total, foolproof automation that created the need for this awesome degree of sophistication. Engineers pleaded for just a few compromises, but Land would not bend.

How do you incorporate a 116mm lens, designed to produce images 3½ inches square, into a pocket camera? They did it with mirrors. It required a special Fresnel mirror, cut off-axis, so that the image from the lens could be directed to the viewfinder on a path divergent from the optical centerline. This, unfortunately, introduced severe off-axis astigmatism, which had to be corrected by precisely "wobbling" the tool that cut the grooves into the master Fresnel mirror. The pitch of the grooves was made steeper near the sides of the camera. Finally, the mirror had to be made to assume the function of a ground glass in a conventional reflex camera. It had to be roughened in an exactly controlled manner to make it reveal clearly when the image was out of focus. This was accomplished by spraying the plastic master mirror with a fine mist of solvent. Hundreds of chemical mixtures were tried before one was found that produced ripples that were uniform and of the correct size.

A thousand computer hours were required to invent an amazing four-element lens that would focus from 10.4 inches to infinity by moving only the front element ¼ inch. Polaroid enlisted Corning, the only company they trusted to make the very special-quality glass required and taught them to make the lenses. They then developed sophisticated new machinery to test the lenses quickly and economically. The viewfinder presented its designers with a task of comparable difficulty.

My life would just not be the same without that magic box. If you haven't yet discovered the joys of SX-70, I hope you will soon. □

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PRODUCT PROOF SHEET



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The Port-A-Lab is a self-contained portable darkroom that weighs only nine pounds and was designed for photographers who have their own equipment but no place to use it. It may be set up anywhere you can find a level place—in the kitchen, camper or even the rear of a station wagon—and is easily assembled. It consists of a wooden base that folds in half, a zinc-plated steel framework that folds for easy carrying plus a dark tent that covers the entire area. Almost any small enlarger up to 2 1/4 x 2 1/4 may be used to give 11x14 enlargements. Closed it measures only 18x25x4 inches but expands to 20x27x32 inches assembled. Tent comes with safe filter front and a side exit door for easy entry. It is equipped with a safelight for illumination inside tent and two electrical connectors for equipment. Distributed by the Kalt Corporation, 2036 Broadway, Santa Monica, California 90404, the Port-A-Lab P-1 has a list price of \$69.95.



FUJI ADDS TWO NEW SLRs

Two new Fujica cameras, ST605 (top) and ST705 (bottom), feature silicon blue cells for fast exposure meter response. Both offer focusing by split-image plus microdiaphragm and ground glass, an ASA range of 25 to 3200, depth-of-field preview, hot shoe, self-timer and single-stroke film advance. Both require two 1.5-volt silver oxide batteries to power the units, come with neckstrap, eye cup and semihard case as standard equipment and accept any of 17 EBC Fuji universal-thread-mount lenses.

Fujica ST605, \$240, with a 55mm f/2.2 standard lens weighs 25 ounces and measures 5 1/4 x 3 1/4 x 3 1/4 inches. Shutter speed range is 1/2 to 1/700 plus B.

Fujica ST705, \$320, with 55mm f/1.8 standard lens weighs 27 ounces and measures 5 1/4 x 3 1/4 x 3 1/4 inches. Shutter speed range is 1/1500 to one second.

For complete details, write Fuji Photo Film U.S.A., Inc., 350 Fifth Avenue, New York, New York 10001.



RICOH 110 UPDATE

The Ricohmatic 600M adds a hot shoe and Ricohlite 18-P electronic flash to the Ricoh 110X camera. Features include a Rikenon 25mm f/2.8 coated lens, four elements in three groups made of optical glass, ± 1 EV backlight control for special lighting situations, four-step zone focusing and programmed mechanical shutter with speeds from 1/30 to 1/250. The Ricohmatic 600M with electronic flash and carrying strap has a suggested list price of \$109.95. Contact Braun North America, 55 Cambridge Parkway, Cambridge, Massachusetts 02142.



COUNT ON KONICA NEW AUTOREFLEX TC

The newest 35mm SLR camera in the Konica line is the shutter-preferred automatic Autoreflex TC with semiautomatic and full manual override. It accepts all Hexanon and Hexar lenses and components of the Autoreflex system. In addition to the aperture reading, the viewfinder display includes under- and overexposure ranges, match-needle indicator for semiautomatic mode and manual-exposure mode indicator. New three-way focusing screen includes central split-image rangefinder surrounded by a microdiaphragm ring and a ground glass ring. Exposure control is based on two through-the-lens CdS cells located in pentaprism; vari-angle viewing adjusts cells to match viewing angle of lens' focal length. System is center-weighted. The shutter is a stainless-steel, vertically run, multibladed type that scans the film plane in 7.5 milliseconds, permitting flash sync to 1/125. Speeds range from 1/2 to 1/1000 plus B. Unique on/off switch is actuated by film transport lever; when lever is partially wound, exposure meter is turned on and shutter release is freed. An off switch on camera back snaps transport lever to closed position, turning off meter and locking shutter. Partially depressing shutter release prior to exposure permits auto exposure memory lock so that position or lighting may be changed without disturbing initial reading. Other features include built-in hot-shoe and X-sync PC outlet, 4- to 10-second variable-delay self-timer, ASA range of 12-1600 plus a compact, lightweight body. New Hexanon 50mm f/1.7 lens is standard with camera at a suggested retail price under \$300. 50mm f/1.4 and 57mm f/1.2 Hexanon lenses are also available. Complete details are available from Konica Camera Co., Div. Berkey Photo, Inc., P.O. 1102, Woodside, New York 11377.

(Continued on page 22)

Please mention PhotoGraphic Magazine when inquiring to manufacturers about the items listed in "Product Proof Sheet."

New product information should be sent to the attention of Karen Geller, Managing Editor, PhotoGraphic Magazine, 8490 Sunset Boulevard, Los Angeles, California 90069.

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PRODUCT PROOF SHEET

(Continued from page 21)



LANE/JORDAN LENS SHADE SYSTEM

The Lane Corporation announces the Lane/Jordan 35mm Lensshade system which centers around sturdy heavy-gauge deep-drawn aluminum lensshade. Each comes equipped to function as a matte box with the attachment of a holder for 3x3 mats or filters; in addition, an adjustable vignette holder, flash deflector, mat shade and sun scrim are also available. Accessory shoes mounted on opposite sides of the shade make it ideal for copying or close-ups. The shoes can also accommodate a fill-flash unit, remote sensor for automatic flash or other shoe-mounted devices. The Lane/Jordan 35mm Lensshade comes in four lengths for wide, normal, portrait and telephoto lenses. The telephoto shade has a retail price of \$29.50; all others (shades only) are \$24.50. Adapter rings, depending on lens accessory size, range from \$3.50 to \$6.95; Tiffen rings are special order. For pricing of the various system components write The Lane Corporation, 1019 Highway 301 South, Tampa, Florida 33619.



TRY NEW COLORS

Yankee Photo Products, Inc., has announced the introduction of a new color combination for Tricolor Agitray sets in a new package design. The new color combination Agitrays, one each blue, yellow and white, have exclusive shallow-rib design that requires little chemistry. Raised rib ends allow easy print removal. Manufacturer's suggested retail prices are 5x7 Agitray sets, \$3.50; 8x10, \$4.75 and 11x14, \$8.95. Contact Yankee Photo Products, Inc., 11295 W. Washington Blvd., Culver City, California 90230.



FILE UNDER "S" SENSIBLE SLIDE SYSTEM

This unique product for slide storage allows filing 2x2-inch slides in any file cabinet equipped with a letter-size hanging file drawer frame, replacing special slide filing furniture. Each Hanging Slide Storage Sheet holds 20 slides in individual pockets; 12 sheets will store 240 slides in only one inch of drawer space. Made of heavy-duty vinyl, they provide long-lasting protection against fingerprints, dirt, dust, scratches and moisture. From A. A. Kesler, Hanging Slide Storage Sheets are 90¢ each in quantities from one to 50 plus \$1 for postage and handling (California residents add six-percent sales tax). Write Arthur A. Kesler, 2204 Pattiglen Avenue, La Verne, California 91750, for larger quantity pricing.



SIMPLE SOUND MOVIES FROM GAF

With the GAF XL sound camera, exposure and volume control are automatic, and focusing is preset from five feet to infinity for easy operation. The camera accepts drop-in super 8 sound or silent film cartridges, ASA 25 to 160. It comes with a microphone so that sound is recorded directly onto film for perfect synchronization. The viewfinder features an under/overexposure warning flag and a red LED that flickers when sound is being recorded. Other features include a Xytar 13mm f/1.1 lens, 230° shutter, 18 fps filming speed, battery test button and audio gain switch. The GAF XL sound camera, \$199.50, is distributed by GAF Corporation, 140 E. 51 Street, New York, New York 10020.

(Continued on page 96)



**The 1956
Beseler 23C.**

**The 1976
Beseler 23C.**

Why Tamper With Success?

Ever since we introduced the Beseler 23C twenty years ago, many other enlargers have come and gone. Yet today like yesterday, this tireless workhorse remains one of the most popular enlarger models in the world. We've made some small improvements and refinements over the years...changes with updated technology which add to the efficiency and quality of your darkroom work. But, you won't find fads or gimmicks on the "all-business" 23C. What you will find is an abundance of functional features that make your job easier to perform with professional results. We urge you to

consider the 23C seriously as the best enlarger investment you can make for your darkroom. Who knows? In 1996, your 23C may still be the top enlarger around. Write to us for all the details on the 23C.

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POINT SOURCE

STEVEN ROSENBAUM

I CAN AFFORD TO BE FRIENDLY NOW



□ One of the "joys" of being a photographer is having all your non-photographer friends ask you to make prints for them. On the one hand, it is nice to be able to do a friend a favor,

and it certainly is flattering to be asked. On the other hand, when translated to the amber reality of your safelit darkroom, such favors often become chores.

As luck would have it, most of these requests go way beyond your photographic talents, but how can you disappoint a friend? It always seems that the one negative that *must* be printed for a friend was made 30 years ago, on an obscure film size for which you have no negative carrier. Of course, your friend would accept a contact print, but any print smaller than 8x10 inches would prove disappointing for the friend's distant relative who's eyesight is now failing. Or how about the grossly underexposed negative that appears to have been made with the illumination provided by two dying fireflies—your girlfriend *must* have a print for her parents' 25th Anniversary bash, and how could you possibly refuse?

My favorite pain-in-the-neck favor used to be making black-and-white prints from color slides. Now, though, I don't even flinch when I see *that one* coming. Why the change? Well, in the past when I had to make a black-and-white print from a color slide, I first made a negative from the slide. This was done either in a slide copier, using a roll of black-and-white panchromatic film to copy onto, or it was done in the enlarger by projecting the slide onto a 4x5-inch piece of sheet film which had to be handled and processed in total darkness. Then after the film was properly exposed, processed and dried, I could make a suitable black-and-white print from the conversion negative. Just thinking about all that time and work weakens me, not to mention all the aggravation caused by having to repeat the cycle if the image was not focused well or if the exposure was wrong.

Now, though, things are different. I not only get good results, but I can do it all in *less* than five minutes. How—by using 4x5-inch Polaroid materials in the darkroom. Using a slide carrier in the enlarger or by supporting the slide in

some other suitable way, the image is projected onto the 4x5-inch Polaroid material in its appropriate holder (Polaroid 4x5 Land Film holder #545 or #500) on the enlarger baseboard. Since the holder is designed primarily for use in a view camera, you will need to level one end by propping it up to assure uniform sharpness from one end of the image to the other.

Polaroid offers five different emulsions in 4x5-inch size—a *Polaroid 4x5*



As described in the text, these illustrations were made directly from 35mm color slides onto 4x5-inch Polaroid material in the enlarger. Photo No. 1 was made on Type 52 black-and-white print material. Photo No. 2 was made on Type 51, high-contrast black-and-white material. Photos No. 3 and 4 show the capability for enlarging sections of a transparency. This feature gives you cropping control when making Polaroid prints. Type 55 Polaroid produces a negative which can be enlarged even further.

Land Film Sampler may be the most convenient way for you to become familiar with four of them, since the Sampler contains five sheets each of the four most popular emulsions. All of the Polaroid emulsions are camera-speed and will probably require short exposure times in your enlarger. I find it

very helpful when working with short exposures to use an electronic timer, like the EPOI Digitrol timer used here.

The Digitrol timer precisely and repeatedly allows for exposure times which range from .10 second up to 99.9 seconds, in .10 second increments. While this critical timing capability is useful for conventional applications as well, it is invaluable when working with film speed emulsions in the enlarger. Since the bright-red digital readout al-



lows for simple and fast resetting of the timer, I even use the timer to monitor the processing time of these Polaroid images. If your timer is not capable of producing very short exposure times or if your enlarging lens diaphragm won't stop down far enough to allow convenient working times, you can use a neutral density filter to reduce light output.

One final note, however—I wouldn't be surprised if you asked your friends to do *you* a favor and provide you with slides from which to make prints. By the way, if any of my friends are reading this, your prints will be ready next Tuesday. □

Beseler Presents... A Better Way To Make Prints From Slides.



With **BESLER RP5 REVERSAL CHEMISTRY**, you'll get more than just a great-looking print. You'll also get versatility, economy, safety, and a little bit of encouragement.

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Until now, there was no choice. If you wanted to make color prints directly from your slides, you had to give up something. Some chemistry brands can only be used at hot temperatures, while others can only be used over a narrow range of ambient temperatures.

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our smaller processing drum, which requires no more than 1½ oz. of solution to make an 8x10 print.

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Color by Beseler RP5 is perfectly safe-to-use. Just follow our normal instructions and recommendations. Moreover, RP5 is bio-degradable and can be used confidently without any negative effects upon the local environment.

A Little Encouragement

Another bonus you get with RP5 is a free step-by-step instruction sheet which explains how to make that first reversal print, even if you've never made a print before in your life. We've also packaged a special Starter Kit which contains RP5 chemistry plus most of the accessories you'll need to make color prints from your slides. Why not pick one up today, and experience the enjoyment of seeing your favorite slides turned into beautiful color prints?

Color by Beseler RP5... #1 in the Dark.

For free literature, write: **Beseler Photo Marketing Co., Inc.**
8 Fernwood Road, Florham Park, N.J. 07932, Dept. RP5-PE



What do Zen meditation, fashion modeling and photo-technical expertise have in common? They're all components of the unusual and unusually refreshing photographic vision of Trudee Hess.

She is one of the few photographers to have made the transition from subject to photographer successfully. During her career as a fashion model, she took pains to learn the craft of photography from the photographers with whom she came into contact. As a result, she has a rare technical edge in her work, which she describes very simply: "I'm very fussy."

Added to this devotion to detail and precision is a love of Zen meditation—the principles of Zen reflect themselves in almost all of her photography, even that done on commercial assignment. "Zen gives you a quietness that makes you more aware and appreciative of things" she says. "You think of objects as having lives of their own. They become important."

Because of her emphasis on technical perfection in her photographs, she places her trust in the Canon F-1 system. Her favorite lenses are the FD 20mm f/2.8 S.S.C. and FD 100-200mm f/5.6 S.C. Zoom—the latter of which she uses a great deal.

Canon's zoom lenses have been long held in high esteem by critical photographers because of their freedom from typical zoom lens

defects such as poor contrast, sharpness and uneven illumination. Part of the reason for this is Canon's long experience in the production of large-ratio high-speed zooms for television and cine use. This

experience has resulted in a line of Canon zoom lenses which are truly the equal of fixed focal lengths in optical as well as mechanical quality.

Trudee particularly likes the F-1 camera body "...because of its weight. It's substantial—I can hold it steadily more easily, especially during long exposures in available light. Normally, when I travel, I just take my F-1 body, the zoom and the 200mm with me. It makes a great, compact system, and it's never given me any problems."

Her clients include Mercedes Benz, the Holland America Line, Avon and Bigelow Carpets. Much of the time, she is selected by Art Directors because of her simple, visually "neat" style—a situation most photographers only dream about. "My portfolio reflects my personal esthetic" she says. "Because of this, I more often than not get to shoot assignments in my own style, rather than interpreting the client's concept the way they see it."

Her precise technique and design purity have gained her a loyal and satisfied client following, and because of this, she continues to place stringent criteria on her and her equipment's performance. "Some people say a particular lens is too sharp. Not I. I can always make it softer, but never sharper. No lens is too sharp for me—but the Canon lenses are sharp enough!"

Canon®
F-1



Vivitar Series 1 35-85mm f2.8 variable focusing lens.



For many photographers a lens of this focal length range is an "ideal" lens covering wide angle, through normal, to medium telephoto. But for professional and scientific photographers the requirements of an "ideal" lens include more than a versatile range of focal lengths.

The assignment given by Vivitar to the Series 1 Research and Development Team included many complex design specifications, some conflicting, such as the need for a relatively high-speed lens and the insistence on compactness.

The specifications included the following: (1) A focal length range from 35 to 85mm. (2) Close focusing capability (3) An f2.8 maximum aperture, so the lens could be used in place of a normal lens in low-light areas (4) Length under 4 inches. (5) Weight under 30 ounces. (6) Contrast and resolution equal to or superior to comparable lenses. (7) Smooth but rugged mechanical operation. (8) Multicoating.

To accomplish all these requirements in one lens the team spent two years working with some of the world's largest computer banks. And instead of using the customary zoom lens configuration, which entailed some sacrifices in resolution at wide angle close focusing, the designers chose a variable focus solution. Changing the focal length is accomplished by movement of three independent floating groups in the lens, thus allowing close focusing to 4.3" from the front element (in the 35mm position), without sacrificing resolution. All done with a single-touch control.

The mechanical motion of these three groups is controlled by cams milled into sleeves. In order to achieve the extremely close tolerances specified by the Japanese mechanical designers, the cams had to be machined on specially-made, numerically-controlled lathes designed and built in Germany and Switzerland.

The extreme compactness of the lens itself necessitated the use of a nested series of cams and operating sleeves. Again, extremely close tolerances had to be maintained on the five concentric sleeves to eliminate centration errors. Even with the use of the most advanced optical equipment available today, to comply with the specifications each lens is individually adjusted by an engineer to ensure optimum optical alignment. The result is a valuable example of international cooperation, representing the combined efforts of Japanese, German and American specialists.



Optical Specifications	
Construction:	12 elements 9 groups
Angle of view:	28° to 63°
Minimum focus distance:	
From film plane:	10.2 in. (25.9 cm)
From front element:	4.3 in. (10.9 cm)
Maximum reproduction ratio:	1:3.5
Focal length ratio:	2.4:1
Mechanical Specifications	
Filter size:	72mm
Weight:	27 oz. (770 gr.)
Length:	3.6 in. (9.1 cm)
Max. diameter:	3.19 in. (81mm)
F/number range:	f2.8 to 16
Slip-on lens hood included. Available in mounts to fit Nikon, Canon, Minolta, Konica, Olympus OM, and Universal Thread Mount cameras.	

Vivitar Series 1 Program

In recent years, remarkable progress has been made in solving some of the classic problems of optical design. Intensive work in the field was spurred on by the demands of space exploration and military applications and vastly aided by the growing sophistication of computer technology.

Vivitar optical designers, working with programs devised for highly specialized optical tasks, have used computer-generated designs to develop for Vivitar a new series of lenses capable of performance unreachable until now.

Each Vivitar Series 1 lens so far introduced represents a breakthrough in optical design. The 200mm f3 and the 135mm f2.3 are among the fastest

automatic telephoto lenses in their respective focal lengths. They are unusually light and compact. Each has a uniquely positioned rear compensating element that automatically corrects aberrations at all points from the closest focusing point to infinity.

The 70-210 f3.5 automatic zoom lens and the 35-85mm f2.8 auto variable focusing lens are likewise definite advances in lens design, both offering extremely close focusing capability and remarkable compact configuration.

Most recently introduced are a 90mm f2.5 macro, a 28mm f1.9, and a 600mm f8 solid catadioptric lens. To come, 800mm f11 solid catadioptric and 1200mm f11 solid catadioptric telephoto lenses. There eventually will be a complete optical system of more than twenty Vivitar Series 1 lenses, each representative of advanced technology and demonstrably superior to other lenses currently available.



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WHERE THE ACTION IS

DAVID SUTTON

GETTING STARTED, PART II



□ Success is relative—the closer the relative, the better. That's an old one-liner, yet no truer words could be spoken concerning professional photography. The practice is demanding, exacting

and requires an enormous amount of experience if you hope to compete with those who started long before you. Talent notwithstanding, there is a certain amount of luck and timing involved, and you must be constantly alert to the opportunities that present themselves. Many times you must create your own opportunities by taking a firm grip on any aid offered you and by keenly listening to sound advice.

Another sermon from the mount? No, just the cold, hard facts of life. The profession of photography is not given to so-called overnight successes. Things may finally come together but usually as a result of no less than several years of sweat, frustration and hard labor. The accumulation of varying degrees of experience (whether you prefer to specialize or be versatile) is extremely important; for obviously, experience is a major factor to getting started.

One of the best ways to climb the ladder is to seek employment as an assistant with an established commercial photographer. For a start the pay may leave a bit to be desired, the hours might be long and/or erratic, and some of the chores might seem menial or seemingly demeaning. As a young would-be photographer, apprenticed at the age of 13 to a master photographer, my first formal lesson in photography consisted of being handed a broom and hearing, "David, sweep out the studio." But in time, I absorbed extremely valuable experience.

The experience you gain while in the employ of another photographer (preferably in the commercial vein) will be enormous. You can consider it on-the-job training. You will encounter such a wide variety of photographic situations, skills and challenges that it will stagger your mind; for the commercial field requires a high degree of versatility, embracing such facets as advertising, architecture, publicity, fashion, industrial, product illustration and application,

portraiture plus much more including editorial coverage. As a matter of fact, my experience in the many-faceted field of commercial photography prepared me perfectly for becoming a magazine photographer and ultimately a photo-journalist. I'm certain that my colleagues would agree that working in a commercial photographic studio makes for an all-encompassing starting point.

But I can hear the screams, "I live in the boondocks. The closest thing to a professional studio is a portrait photog

offer quite a number of photographic opportunities. The army, air force and navy have well-staffed and well-equipped photo departments. Military photographers are stationed all over the globe, and while on their tour of duty, they are gathering important experience and familiarity with all types of equipment and situations. Certainly, I'm not suggesting that you head for the nearest recruiting center and sign up for a four-year hitch. I will say, however, that many a top pro acquired valuable ex-



This black-and-white from color shot of a B-1 Bomber was shot on the run while illustrating a story involving Rockwell International. Experience and equipment are vital ingredients. You never know what might suddenly be expected of you during an assignment. © David Sutton

downtown who occasionally knocks out a shot or two for the local paper." Or, "There isn't any kind of commercial photo studio within 100 miles of where I live." "The local pro isn't taking anyone on, and he has all the accounts locked up." And so on.

To such moans of despair I can only say that if the area you live in cannot or will not quench your thirst for experience or support your desire for photographic employment or to hang out your own shingle, then you must travel as need be and *go where the action is!* I know how difficult it is to tear up one's roots, and I don't take your complaints lightly, but to be pragmatic, *if you want to move up, you may have to move out.*

Before making any drastic moves, however, study your locality very thoroughly. The local photographer may be snowed under with weddings, etc., and doesn't have time to handle spot coverage for the newspaper. Perhaps the paper is considering employing a full-time photographer or replacing one who's just left—timing and luck, remember? What about the nearby industries—one or more companies may be big enough to require their own photo department or at least a staff photographer. If their needs are only occasional, perhaps you can do some work for them. And how about the civil service—some of the tests they give are stiff indeed, but it's worth a try. If you can manage to qualify for the photographer classification, you may find yourself covering a variety of situations for the police department, municipal works, chamber of commerce and other life-support community systems.

Believe it or not, the military services

experience while in the service.

While the pursuit of professional photography requires no less than a basic foundation of experience to start with, it also requires a certain amount of sacrifice. Money that might be used to acquire a new car, air conditioning, carpeting or other personal luxuries may well go toward the purchase of photo equipment. If working for another photographer doesn't provide you with enough income, you may have to take other jobs at night, Saturdays and Sundays. These are but a few forms of sacrifice and self-deprivation, and many photographers have had to resort to such tactics, not only to survive but to further their careers as well.

To repeat last month's "ABCs of Getting Started," list the phrases, ambition, backlog of experience and cash outlay on separate sheets of paper. State all your ambitions—past, present and future—as well as all actual experience you have gained to date. Also make a tally of your cash outlay and reserve. Be completely honest and as detailed as possible. Keep close tabs on your ABC chart, adding to or deleting as the situations may warrant. It's a simple guide to what you wish to achieve, the amount of know-how you have to make the breakthrough and whether or not you are prepared and can afford to proceed at this time.

Finally, don't despair. Achievement and success are elusive commodities, but they *can* be obtained. Just keep your eyes and ears open so that when the door of opportunity opens, you will see it and hear it. Then run like hell to get through—before it slams shut. □

FOCUS ON FILMMAKING

MARKENE KRUSE-SMITH

WHAT'S A DITTY BAG?



□ I once knew a sailor who wore sweat-salty work shirts and blue jeans that looked as though they'd seen the world. He had one good leg. The other ended somewhere around his knee and was attached to a wooden stump that squeaked when he walked. If he had a left eye, I never saw it because, affected or not, he wore a great black patch over the area where that orb should have been. Perched on his shoulder was a parrot he claimed was 55 years old. The parrot never shut up. He liked to curse in Portuguese. I think the bird's name was Arnold; I've forgotten what the sailor called himself.

But the most remarkable thing about this sailor was the bag that was inevitably swung over the shoulder not occupied by Arnold. The two of them could live for months with no earthly belongings but the wondrous and sundry items that bag contained. Now any sailor can tell you a ditty bag is a small bag he uses to hold needles and thread, soap, laundry and personal accoutrements. But of what conceivable use could such a bag be to a filmmaker?

Filmmakers and sailors have a few things in common, actually. The most obvious connection is that both have to be prepared for any foreseeable contingencies that may arise during the course of their involvement with their respective occupations. Just as the sailor can't jump overboard and swim back to shore in the event that he's forgotten to bring along birdseed for Arnold, a filmmaker can't leave the scene of action at 11:30 on a Saturday night movie shoot when the batteries run out. The parrot would starve, and the camera would stop functioning.

Although I lost contact with the sailor when his freighter shipped out for Bora Bora, I'll always remember the ditty bag. And who could forget Arnold? Soon after this period, my involvement with filmmaking grew to the proportions of an all-consuming passion for moving images. In order of preference my favorite pastimes became making pictures, watching pictures and watching pictures being made. These pursuits

have taught me that, like seasoned sailors, even weekend filmmakers have got to be prepared for anything. And—wonder of wonders—while camerapeople don't often sport a romantic patch or wooden leg, they nearly always tote along a ditty bag. Tucked into these wonderful bags are all the items that need to be in reach while filming.

What goes into a movie ditty bag? That's up to you, but most ditty bags are packed with miscellaneous paraphernalia and accessories necessary to operate and maintain your camera, lights and, if you're shooting with double-system sound, a tape recorder.

A filmmaker's ditty bag could be a camera bag, a pouch or a hunter's vest with pockets to hold necessities. Some camera operators carry a ditty box. A fishing tackle box works perfectly because its many compartments can be pulled out for ready access to such essentials as batteries, filters and lens cleaning tissues. Canvas tackle bags used by horse owners to carry around bridles and other gear are sturdy, roomy and can be found in most tack shops. Good bags can also be found in army surplus stores, where an army belt with hanging pouches can be purchased for a song. (Just stroll in and hum a ditty!) Hardware stores also carry workman's gear cases that could be easily adapted to the needs of a camera operator. The first thing to do when you buy a good bag or box is to put your name and address on the outside of the case to increase the chances that you'll get the bag back in case it ever gets lost. After all, you're going to put a lot of important items in your new bag, and you'll want to keep it around for a while if you do much filming at all.

The ditty bag is where you put the film, extra batteries for camera and tape recorder, lens tissues and cleaning fluid, cotton swabs for cleaning the inside of your camera, Dust-Off, a blower-brush for removing specks of dirt from hard-to-reach places and maybe a screwdriver or a penny to open the camera compartment to get the batteries out. You might want to tuck a piece of plastic into the bag so you can cover the camera in case it rains. And bring along some chamois cloth to clean and polish your equipment inside and out.

Professional camera operators usually tuck a copy of *The American Cinematographer Manual* into a compartment of their ditty bags to refer to for exposure conversion tables, filter charts and the myriad other technical specifications it contains. Your own technical manual could be as basic as the instruction

book that came with your camera, or you might want to bring along a couple of Kodak pamphlets that seem especially relevant to the kind of filming you'll be doing.

Filters should be carried in the ditty bag, too, if you're accustomed to using them. Many filmmakers leave a polarizing filter over the lens all the time to eliminate reflections, cut glare, bring out clouds in outdoor scenes with lots of sky in the frame and to protect the lens. If your camera doesn't have a filter ring or adapter and you can't find a way to mount a glass or plastic filter, buy filter gels. They can be taped over the lens while filming.

That brings us to another essential ditty bag item—gaffers' tape. If your local photo dealer doesn't carry this amazingly strong and durable tape, buy a roll of plumbers' tape or silver duct tape at a hardware store. You'll use it to hang props, to tape gels and filters over the lens, to secure plastic over the camera, to leave floor marks to indicate where your actors should stand and where tripod and sets will be positioned.

If you're using artificial lights on the shoot, be sure to bring extra lightbulbs in the ditty bag. Diffusion materials for the lights, such as spun glass or velveteen, can also go in the bag, as well as some clothespins to hang gels in front of the lights. It's also wise to carry a 3-2 adapter with you, so you're not stuck when you arrive on location with all your lighting gear, only to discover that the lights have three-prong plugs, and the only available sockets are of the two-plug variety.

You'll need a light meter and 18-percent gray cards. Nails, a hammer, pliers and a screwdriver are good tools to have around when you have to set up props and lights. Don't forget to include a cable release if there's any chance at all that you'll be shooting single-frame sequences.

The main thing about ditty bag packing is careful planning. Check your equipment thoroughly to figure out what tools might be necessary to handle any problems that may arise. For example, if most of the screws on your equipment are Phillips screws, a Phillips screwdriver might come in handy. Before you shoot, make a list of all the equipment and accessories you'll need. Then list as many problems as you can think of that you may have to deal with while filming. Bring along replacements for any parts that might break or run out. And, if you're toting along a feathered friend, whatever you do, don't forget the birdseed! □

Five unique challenges only the Hasselblad system can meet

The Hasselblad system is designed to allow every photographer to create the perfect camera for his needs. So it's no surprise that in a recent survey, Hasselblad was named by eight out of ten top commercial photographers as the medium format camera used in their work. And Hasselblad was named ten to one over the next leading brand.

Plot the Flow of the Nile River. When aerial photography is your assignment, you need a camera that is versatile and easy-to-use. A camera configuration like this Hasselblad: The 500 EL/M with Zeiss Planar 100mm T* lens, 70mm film magazine, HC-3/70 prism viewfinder, automatic diaphragm control unit and double hand grip. The only hand-held medium format motor-drive camera with optional adjustable grip for best balance—even in a vibrating plane. The lens is virtually distortion free and only Hasselblad offers automatic aperture servo-control. The large 2 1/4" format permits superb reproduction of fine details and you can take up to 70 shots without changing film magazines.



Prepare a Presentation for Regional Sales Meetings in 12 Cities. A Hasselblad 500 C/M with a magazine A 16S is the only professional camera designed to make superslides. Set in 2" x 2" slide mounts, they fit any 35mm projector. But, the image area is a large 1 1/2" x 1 1/2"—twice the area of a 35mm. And the square format means no mixing of horizontal and vertical slides. With exposure meter winding knob, correct exposure settings are easy to determine. The 50mm Zeiss Distagon lens is a light and convenient "normal" (in this situation) wide-angle with outstanding resolution.

Photograph the Coliseum in Rome. The Hasselblad SWC is the only medium format camera especially designed for wide angle photography, with virtually perfect correction for curvilinear distortion. The fixed Zeiss Biogon 38mm T* lens with multicoating has a 90° angle of view, and a minimum focusing distance of 12". Depth of field at f/22 is 26" to infinity. A built-in spirit level allows perfect levelling. The focusing screen adapter and magnifying hood produces a brilliant 2.5X image. When ready to shoot, remove the hood and adapter and attach any of seven film magazines with your choice of film and format.



Survey Underwater Life in the Caribbean. Whether you need a normal or wide-angle perspective, individual or sequential shots, Hasselblad makes an underwater housing for the camera that best suits your needs: The 500 C/M, the 500 EL/M or the SWC. Each housing has functional grips and controls, and a special viewfinder system. Not surprisingly, only Hasselblad makes 3 underwater housings, because it's their philosophy to continue to expand the largest medium format system to keep ahead of every photographer's needs. Yet all equipment is interchangeable with any Hasselblad made since 1957 and with all future Hasselblads.

Create a photo essay on Kenya's Tsavo National Park. The only hand-held 2 1/4" camera with built-in motor drive is the Hasselblad 500 EL/M. Using the 500mm Zeiss Tele-Tessar T* lens for maximum telephoto effect and the platform gunstock, specially designed for this set up, you can shoot at speeds down to 1/125th without a tripod—to capture elusive animals in their natural habitats. For extra ease and speed, add a 70mm magazine so you don't have to change film frequently, and a center-weighted meter prism viewfinder for fast exposure information on the light scale visible at the base of the viewfinder.



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JOAN YARFITZ

INSPIRED IMAGININGS WITH FOTOMAT



□The Fotomat Corporation has recently initiated something very original for the advancement of photography. And regardless of what you may be thinking, it's not the construction of yet another little drive-up yellow structure which only serves to further confuse an already hectic supermarket parking lot. Rather, it's an innovative, specialized approach to teaching photography to a unique segment of the population. Now you're probably entertaining thoughts such as, "So what! What does specialized photo education have to do with photo clubs?" And I must confess, when I first glanced through the yellow binders that crossed my desk a while ago, my thoughts ran in a similar vein. But then I began

making all kinds of interesting connections between all these seemingly disparate elements and present these ideas to you for your inspiration and creative interpretations.

Several years ago it was suggested to Fotomat Corporation that they help develop an educational program for teaching photography to deaf students. Teaching photography to any handicapped person, of course, presents specific problems and necessitates special-



ized techniques, and there are already several programs in existence geared to rehabilitation of the handicapped through photography (see "Club Close-Ups," November, 1975 issue). But photo education for the deaf was an area that had been fairly neglected up to this time.

Most of the photo texts and written materials were far too sophisticated and the language too detailed for the deaf

student's communication skills, and to make matters worse, most sign language teachers had little knowledge of the basics of photography. Fotomat decided that here existed a pressing need which their resources could adequately fill, and so they set about designing a comprehensive photo education package that would not only be supplemented by simply written text but would also enable almost anyone to teach basic photo skills.

The concept became a reality as Fotomat executives brainstormed with top educators in the field, with representatives from the National Technical Institute for the Deaf, Rochester, New York; California School for the Deaf, Berkeley, California; Arizona State School for the Deaf and the Blind, Tucson, Arizona, and the California School for the Deaf, Riverside, California, and out of these sessions Fotomat's *Learning Photography* was born. The program works like this:

Fotomat will support *photography clubs* at selected schools by providing *Learning Photography* basic student workbooks, a *Teacher's Guide*, an *Area Manager's Guide*, cameras, film, film processing, flash products, photo albums, teaching aids, student membership cards and student certificates of accomplishment.

Introducing: The world's smallest full-frame 35mm camera.

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The Minox 35 EL has fully automatic exposure control. You set the aperture. The camera sets the shutter speed. Shutter speeds range from 1/500 to 30 seconds. (That's right, automatic exposures for ASA 25 film can be as long as half a minute.)

Accurate exposure is half the story. The precision optical system is ideal for almost



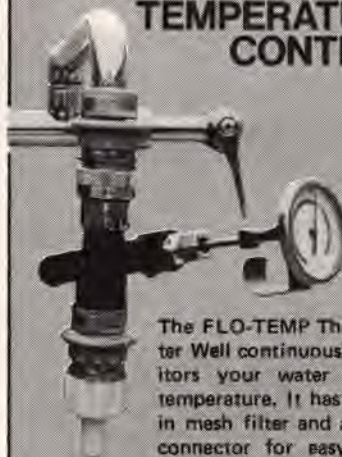
any shot. The f/2.8 lens is of 35mm focal length, a moderate wide angle with great depth of field. At f/11 with the lens set at 15 feet, pictures are sharp from 7 feet to infinity. Because of the great depth of field, focusing is easy and is not critical at most distances and apertures.

Altogether, this camera will do almost anything an SLR with a normal lens will do. Plus one more thing that can make all the difference in the world. The Minox is small enough to be in your pocket when that once-in-a-lifetime photographic opportunity occurs.

And isn't that what photography is all about anyway?

For the name and address of your Minox dealer, just contact Minox U.S.A., Rockleigh, N.J. 07647. Dept. C8.

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The student workbook is divided into nine units, each representing a one-month course in a nine-month term. Each unit contains chapters which cover different aspects of photography; then each chapter is supported by a review section, followed by relevant assignments. Every verbal concept presented is accompanied by photos and drawings to further illustrate the point. The units cover such topics as what are photography's purposes, the workings of the camera, film, light, color, film processing, how to take successful pictures, how to shoot different subjects, etc.

The *Teacher's Guide* assists the instructor by giving material lists and discussion topics related to student assignments. It summarizes the unit information and outlines suggested projects that pertain to lessons. The teacher issues each student a camera and supply of film and Magicubes needed to complete assignments, and then film is mailed to Fotomat Corporation in prepaid processing envelopes.

The possibilities for camera clubs to become involved in Fotomat's photo-education project may be more obvious and practical than you now think. If you live in a community where there is a school or special classes for deaf students and you have access to a person who is qualified to teach in sign lan-

guage, your club might just be able to sponsor a photo club with Fotomat supplying all the materials outlined above.

But, obviously, most clubs probably won't be able to fulfill all the very specialized criteria required by Fotomat to sponsor such a comprehensive photo education project in their community and thereby qualify for all the materials and services that Fotomat would supply to a school that caters to deaf students. But what Fotomat will supply free upon request are the *Learning Photography* student's workbooks and the *Teacher's Guide*, and with these, a camera club could very conceivably begin to teach a photography program for youngsters in the community.

Imagine, if you will, a Saturday morning class of young children, taught by camera club members, while parents attend to weekend chores and errands. Not only would you be doing the adults in your community a great service, but you'd be engaging in a club project that could be responsible for stirring the imaginations and creative energies of budding future photographers.

The lesson material and its presentation are so basic that most any club member should be able to teach without any difficulty. Inexpensive cameras, film and processing costs could be supplied and paid for by parents as the

class fee, or if you're one of those clubs with an expansive treasury, part of the expenses could be defrayed by the club. Field trips and outings could also be part of the program; parents could be invited to assist and do their own picture taking (a good way to seek out new club members).

What I've presented here are the possibilities and inspirations that occurred to me as I studied the educational materials Fotomat sent to me, but as I implied at the beginning of this column, the potential use of Fotomat's photo program is ultimately up to your creative imaginings and inspired visions. So if you're ready to challenge your imaginations and do something just a bit out of the ordinary, write to Fotomat Corporation, c/o Delores Sloan Lake, 7590 Fay Avenue, La Jolla, California 92037, and tell them what you have in mind for your community. □

Camera clubs please note: "Contest News" can be found on page 90.

Join a Camera Club: Just send a self-addressed, stamped envelope, along with a list of nearby zip-codes to Camera Club Editor, c/o PhotoGraphic Magazine, 8490 Sunset Blvd., Los Angeles, California 90069.

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0536. Photomacrophraphy Art & Techniques by Papert. List \$8.95.



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0356. Photographic Lighting by Woolley. List \$10.95.



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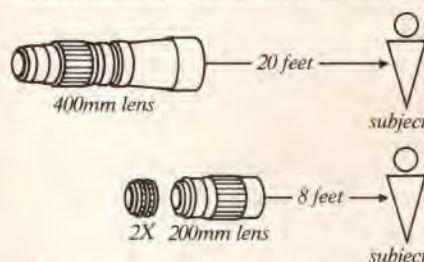
Vivitar Tele Converters double or triple the focal length of your lens...inexpensively.

Vivitar 2X and 3X Automatic Tele Converters are surprisingly inexpensive alternatives to buying telephoto lenses. A Vivitar Tele Converter may appear to be a fairly simple device, but in reality it's a sophisticated optical and mechanical instrument and a fine lens in its own right. That's what

works just as it would if you weren't using a Vivitar Tele Converter.

It's true that the most popular reason for using Vivitar 2X and 3X Tele Converters is the low cost. That's because suggested retail prices range from only \$29.50 to \$54.50 depending on the camera

get using a long lens. For example, a good 200mm lens will focus as close as 6 or 8 feet. Most 400mm lenses have a minimum focusing



distance of 20 feet or more. But if you put a Vivitar 2X Tele Converter on your 200mm lens, you have a 400mm lens that will focus as close as the 200mm prime lens.

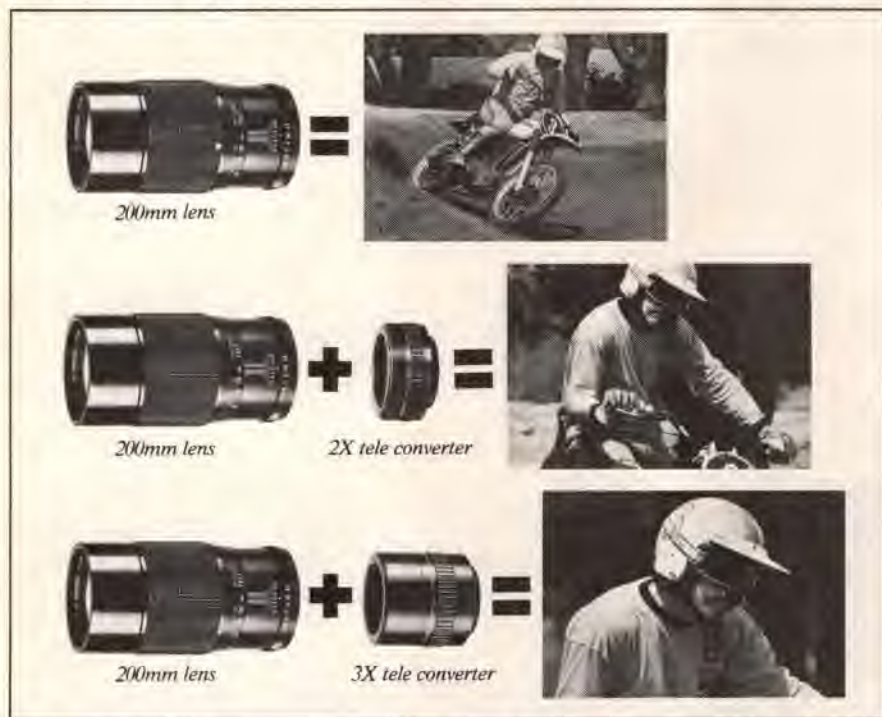
Here's another idea. The longer the focal length of a lens, the shallower its depth of field is. So a 200mm lens with a 2X Tele Converter (=400mm) will give you greater depth of field than a 400mm telephoto lens focused at the same distance using the same aperture.

Vivitar Tele Converters match the style and finish of the cameras they're designed for. There's a Vivitar Tele Converter for most popular 35mm SLRs: Nikon, Nikkormat, Canon, Pentax, Mamiya Sekor, *Exakta, Minolta, Olympus OM-1 & OM-2, Konica, *Miranda, *Topcon, and Vivitar.

*2X Tele Converters only available for these cameras.

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The four-element, fully-coated optical group in Vivitar Tele Converters not only double... or triple...the size of the photographic image, they must also correct for aberrations introduced when the focal length of your prime lens is doubled or tripled. Mechanically, the Tele Converter couples to your lens and to the built-in metering system or automatic exposure control system of your camera so that everything

they're made to fit and whether they're 2X or 3X. But there are some other very good reasons for using Tele Converters instead of extra lenses. Professionals, who aren't especially concerned with cost, carry Vivitar Tele Converters for the convenience. A Tele Converter takes up much less room and weighs far less than big telephoto lenses.

Also, the pros know a couple of interesting photographic effects you can get with a Tele Converter that you couldn't

Photographic's SPEC SHEET

NIKKORMAT ELW



TYPE: 35mm single-lens reflex with electric auto winder

LENS MOUNT: Nikon F bayonet

SIZE: 5 11/16" long x 3 11/16" high x 2 5/32" deep (145mm x 93.5mm x 54.5mm) (body only)

WEIGHT: 27.9 ozs. (790g) (body only)

BASIC PACKAGE: Camera body, normal lens, lens cap and autowinder

PRICES: Camera with 50mm f/1.4 lens and Auto Winder AW-1 \$884.50

DISTRIBUTOR: Ehrenreich Photo-Optical Industries, Inc., 623 Stewart Avenue, Garden City, New York 11530

FEATURES

Viewfinder: Fixed eye-level pentaprism with non-removable focusing screen. Viewfinder screen has central split image with microprism collar, ground glass area and Fresnel screen; 92 percent of frame area is seen in viewfinder. Shutter speed indicator and match needle are combined on left of viewing screen.

Shutter: Electromagnetically controlled, vertical focal-plane shutter with stepless speeds from four seconds to 1/1000, plus B. Manual speeds are stepped at normal intervals. Shutter will operate at 1/90 second without battery power.

Mirror: Automatic, instant-return type with lock-up capability.

Automation: Fully automatic exposure control, aperture-preferred. Optional, manual match-needle operation. Manual/automatic control is incorporated in shutter speed setting dial with auto operation indicated by "A."

Exposure Meter: Center-weighted, through-the-lens CdS meter. ASA range 25 to 1600.

Frame Counter: Automatic, additive type; exposed frames visible in window adjacent to film advance.

Film Advance: Film advanced automatically by Auto Winder AW-1 when pressure is taken off shutter release. 135° single-stroke manual lever on camera body can also be used to advance film, cock shutter and advance frame counter.

Flash Synchronization: Single PC connector is provided with switch to facilitate use of flashbulbs or electronic flash. X synchronization can be used up to 1/125 second.

Accessory Shoe: Hot-shoe type accessory mount is provided on top of pentaprism. Window in shutter speed dial shows symbols that indicate if sync is set for bulbs or electronic flash.

Self-Timer: An 8- to 10-second delay can be set with lever on front of body. Lever includes memory lock on auto/exposure system when pushed toward lens.

Battery: One six-volt, silver oxide battery is located in compartment below reflex mirror. Lens must be removed and mirror locked up to gain access to battery. Auto Winder AW-1 uses six 1.5-volt penlight batteries.

Battery Check: Button on camera back will turn on small light next to it when battery is in operating condition. No check required on Auto Winder.

Lenses Available: A most complete selection of Nikon lenses is available from 6mm to 2000mm, including five fisheyes, three mirror lenses, five zooms and six micro and other special-purpose optics.

Accessories: In addition to the Auto Winder AW-1, there are eyepiece correction lenses, a finder eyecup, right-angle viewing attachment, flash unit coupler, speedlights and cases for use with or without the Auto Winder. Many accessories for the Nikon F2 can be used with the Nikkormat ELW.

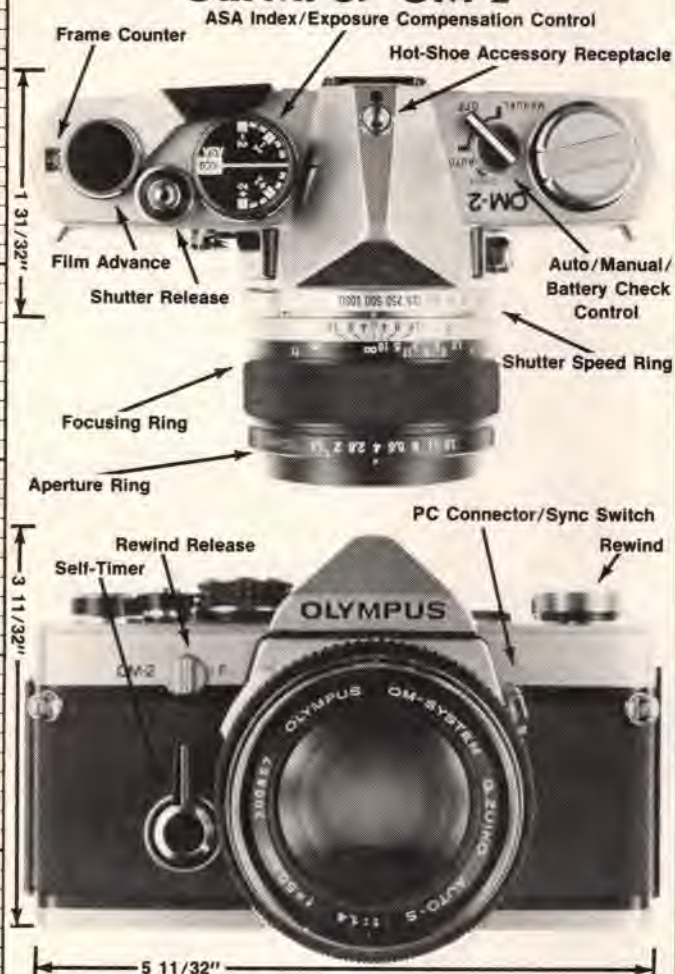
COMMENTS

Combining the advantages of automatic exposure control and compact electric film winder, the ELW allows the photographer to concentrate fully on what he sees happening in the viewfinder. The applications of the system to every kind of action photography should be obvious; the advantage of not having to think about either exposure or winding film will make photographing people and their expressions much easier. As well, the smaller size and lighter weight of the Auto Winder will be advantages to many who have a lot of gear to carry.

The Nikkormat ELW continues the fine Nikon tradition with a camera that encourages confidence in its smooth operation, precise controls and substantial construction. The finish and materials are superb in a camera design that incorporates the newest features available without any sacrifice of proven functions and excellence.

Photographic's SPEC SHEET

OLYMPUS OM-2



TYPE: 35mm single-lens reflex

LENS MOUNT: Olympus OM bayonet

SIZE: 5 11/32" long x 3 11/32" high x 1 31/32" deep (136mm x 83mm x 50mm) (body only)

WEIGHT: 18.3 ozs. (520g) (body only)

BASIC PACKAGE: Camera body, normal lens, front and rear lens caps, body cap, neck strap with shoulder pad and batteries

PRICES: Camera with 50mm f/1.8 lens, \$599.95, \$624.95 in black; with 50mm f/1.4 lens, \$654.95, \$679.95 in black; with 55mm f/1.2 lens, \$754.95, \$779.95 in black

DISTRIBUTOR: Ponder and Best, Inc., 1630 Stewart Street, Santa Monica, California 90406

FEATURES

Viewfinder: Fixed eye-level pentaprism with interchangeable focusing screens. Standard screen is matte with central micropism; 97 percent of picture area in field of view. Shutter speeds indicated when set on automatic. Match-needle indicator visible when on manual.

Shutter: Electronically controlled, horizontal, cloth focal-plane shutter with speeds from one second to 1/1000, plus B.

Mirror: Automatic, instant-return type, oversized to prevent cut-off with telephoto lenses. No lock-up provision available.

Automation: Fully automatic exposure control, aperture-preferred. Optional, manual match-needle exposure control. Automatic/manual switch located on top of camera between film rewind and pentaprism. A $\pm$ two f-stop control on automatic is incorporated in ASA dial.

Exposure Meter: Through-the-lens metering using two silicon blue cells reading a special reflector at film plane. Meter automatically reads center for bright scenes and averages reading at low light levels. ASA range 12 to 1500.

Frame Counter: Automatic, additive type; exposed frames visible in window adjacent to film advance.

Film Advance: 150° single stroke ratchetted for several short strokes. One full stroke winds film, sets counter and cocks shutter.

Flash Synchronization: For focal plane and electronic flash, with control switch incorporated in PC contact assembly. Electronic flash synched at 1/60 and below. Automatic flash exposure control incorporated with use of TTC Auto Flash.

Accessory Shoe: Attachment point for accessory hot-shoe is located on pentaprism housing.

Self-Timer: Lever-operated self-timer control on front of camera body will activate a 4- to 12-second delay. Delay can be stopped and reset after it has been started.

Battery: Two 1.5-volt silver oxide batteries are located in receptacle in camera baseplate. Eveready S-76 or equivalent recommended.

Battery Check: A three-phase battery check is controlled by automatic/manual lever with adjacent light indicator window on back of camera body. Continuous light indicates batteries are strong; flashing indicates weakness, and no light means dead batteries.

Lenses Available: A full range of Zuiko lenses are available from 8mm to 1000mm, including two fish-eyes, a zoom and four macros.

Accessories: Two motor drives are available, 12 different focusing screens, special Varimagi finder, diopter correction lenses, electronic flash units, bellows, extension rings, copy and macro stands, slide copier, microscope adapter, recordata back, 250-exposure back and several different cases.

COMMENTS

The Olympus OM-2 has an extremely unique set of attributes. It is part of a most comprehensive camera system interchangeable with the OM-1. It is fully automatic with all the characteristics of a professional-type 35mm camera including a choice of motor drives. In addition, it is extremely compact with an extensive range of lightweight lenses to complement the basic camera.

The OM-2 also has some individual features that are unique. The exposure measuring system incorporates features that allow a flexible response to a variety of lighting conditions. In addition, deliberate manual exposure compensation is most conveniently facilitated. The OM-2 is an easy camera to operate with controls in very logical and accessible locations. It includes almost every desirable feature in its ingenious design without any sacrifice to utility. It is a camera carefully assembled and finished, capable of the most sophisticated and rigorous photographic applications.

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FOLLOW THE LIGHT

□ No matter if you're traveling for vacation pleasure or for purposes of bringing back and selling your photographs to breathlessly waiting editors, the rules remain the same. The whole idea of taking photos while abroad—or even a few hundred miles from home—is to bring back the finest, most graphic representations of where you were and what you saw.

The rules, as such, fit into several categories—for professional or amateur alike—and they are as follows: 1. planning your trip; 2. insuring your equipment; 3. what to pack; 4. registering your equipment; 5. what film to take, and 6. processing and editing. The remaining "rules" center on your ability to squeeze every available moment into useful, practical picture taking. With your attention and a little patience for details I believe I can forestall many of the mistakes that the well-intentioned photographer can make while on a trip.

For example, a few years ago I began to contemplate spending a year in Europe. Admittedly, not all travelers are likely to spend a year anywhere. However, be it a year or a two-week vacation, one should be able to learn from previous experiences. I knew from past travel experiences to Australia and is-

land groups in the Pacific that a month or two would not be sufficient time to travel and photograph the countries of Europe, its peoples and customs, in any sort of depth. However, I would still be faced with the same problems of the photographer/traveler on a two-week vacation. I would have to be alert to picture-taking possibilities at all times; my cameras would always have to be ready.

Leaving my familiar territory for an entire year meant giving up friends and clients and possibly being forgotten. (What was that photographer's name—Paul, who?) Considering these factors, I researched the possibilities of earning a living in Europe. I contacted a variety of local and national publications as well as other avenues for picture sales

(something which amateurs should also consider in an effort to defray their travel expenses), including this assignment for PhotoGraphic. Be aware, though, that most publications, including PhotoGraphic, do not always work on assignments. They work on "spec," or speculation, with the final editorial decision always being left to the editor to make after receipt of the material.

However, I began to prepare for the year of travel. This meant closing up shop, getting rid of possessions and updating my 35mm single-lens reflex system. It has been five months since I left Los Angeles, and I am writing this article from Barcelona, Spain, endeavoring to meet the magazine deadline so I can return to picture taking. But before discussing specifics of the trip, I want to write about a most important part of any journey—the preparation stage.

PLAN BEFORE YOU GO

The very first consideration for a trip (travel arrangements notwithstanding) is to update your equipment and have everything overhauled at a custom repair shop to be sure you can depend on your camera and lenses. Repair work not only takes up shooting time and valuable vacation time, but it is difficult to locate reliable repair shops anywhere in Europe, except in certain major cities.

The second consideration is what type of camera case to take for your equipment. (No matter how many travel articles I have read, the photographer/writer always tries to impose a certain equipment awareness on the reader. I have never been able to match their equipment demands and depend upon my own needs as dictated by budget and other factors. I suggest you do the same.) While a "sil-

ver" aluminum case will protect your equipment from being banged around, it will also be spotted in a minute by a professional thief. When you are constantly on the move, the chances of getting ripped off are greater. Because of this, I spent many weeks combing camera shops looking at different cases and bags. Finally, I found one. The bag I selected is made of strongly constructed genuine leather, with five separate zippered compartments—the strongest zippers you ever saw!

In my search for suitable carrying cases for my equipment, I was also looking for something appropriate to protect my Nikon camera bodies when they weren't in use. I had pouches for lenses and accessories but couldn't find anything for the camera bodies. But perseverance finally paid off, and I was rewarded and pleasantly surprised to discover that Larson Enterprises (the same people who make and sell Reflectasol umbrellas and strobes), 18170 Euclid Street, Fountain Valley, California 92708, has designed a black leather pouch, with a silklike lining that perfectly holds a camera body; it has a zipper and two straps, so you can wear it on your belt. An extra pouch could carry more accessories.

INSURANCE IS A MUST

When all the equipment is together, what's the next step? Well, are you insured completely for all risk in whatever country you may be traveling? Even if you are going on a short trip, call your insurance agent and have them write up a rider on your present home policy to cover you for any loss or theft while abroad or away from home. If you use your cameras professionally, you will find that worldwide, all-risk coverage will run one percent a month of the total value of the equipment you choose to insure. For example, if you are taking \$4000 worth of cameras, the cost will be approximately \$40 a month, in addition to the cost of your normal policy per year (at least, this is the policy of most U.S. insurance companies). However, whatever you decide to do, by all means *do* insure your equipment.

WHAT TO PACK

I know I mentioned that most travel photographers like to tell you what to take in the way of equipment, and I know that I mentioned that I always take exception to being told what to do. However, for the record, I packed two Nikon bodies, an F2 and an F2S (for low-light situations), plus a Braun

strobe unit, which can be re-charged on 110 and 220 current. I also took the following Nikkor lenses: 20mm, 24mm, 50mm, 55mm macro, 105mm and the remarkably sharp 80-200mm zoom. I usually find myself using the 24mm and the zoom but will switch to the 105mm when the light conditions are poor and I need the extra speed. On certain occasions I have need for all of the lenses and I drag them along, weight and all. Added to the above, I carry filters and a few other accessories. I must stress that you need not try to duplicate my outfit; rely instead on your own equipment and needs. But be aware that a wide-angle lens, and a zoom, if you have one, can be considered vital necessities.

REGISTER YOUR EQUIPMENT

Don't forget to register your equipment with the U.S. Customs department before departing for a foreign country, or you will have difficult reentry problems when you return to the United States and may have to pay duty on equipment that you own. If you happen to purchase equipment while abroad, by all means, *do* keep the sales slips. Before you leave for a trip abroad, make a list of all of the equipment you will be taking, and their respective serial numbers, and bring it with you to the U.S. Customs agent. This simple procedure will speed up this vital necessity and will also afford you a list of your equipment for insurance purposes should you be ripped off or have your equipment damaged.

Speaking of buying equipment while abroad—get what you need in the United States before you leave. Those duty-free ports such as Shannon Airport, Ireland and the Amsterdam Airport, Holland, don't stock anything you would really want for a good camera system. Also, their prices are no better than those in most camera stores in the United States.

Graphic street scene was photographed in late afternoon in a little town in England. Original photo was exposed on Kodak Kodachrome 64 Film and a 24mm lens was used. All photos taken with Nikon cameras and Nikkor lenses. Black-and-white photos, unless otherwise indicated, are knockdowns from color slides. Exposure readings were made with through-the-lens metering and were not recorded.





FOLLOW THE LIGHT







Early morning shot of a stream outside of Lynmouth, England, in Cornwall was photographed with a 105mm lens; original was exposed on Kodachrome 64 film.

Facing page: This tree-lined footpath was photographed in Bordeaux, France, with Kodachrome 64 film and a 24mm lens.

FILM TIPS

Film is more expensive in most European countries, except for Switzerland and England, where prices are compa-



1. Some of the most delightful designs decorate the bridges of Paris. This row of lights on Pont Alexandre III was photographed on Kodachrome 64 film with a 105mm lens.

2. Also in Paris, I happened to see this charming woman leaning out of her window while I walked a narrow street one morning. Photo taken with Kodak Kodachrome II Film and 105mm lens.

3. These birds were silhouetted against the sky as they flew over Lake Annecy, France, at dusk. They were photographed on Kodachrome 64 film with an 80-200mm zoom lens.

4. Another end-of-the-day shot, this one was made of the silhouetted chimneys of buildings in Grenoble, France. Film was Kodachrome 64, with 105mm lens on the camera.

5. A rainy afternoon in Versailles, France, resulted in this photo, taken with Kodak High Speed Ektachrome Film and 24mm lens.

FOLLOW THE LIGHT

table to those in the United States.

It's wise to carry film in X-ray-proof bags, available at most camera shops. I usually ask airport officials to hand-inspect all of my equipment and film, but just in case they insist upon X-raying everything in sight, I usually put my film in one of the leaded bags made by Sima Products, 7380 N. Lincoln Ave., Lincolnwood, Illinois 60646, and sold under the trade name of FilmShield. Do not forget that X-rays are cumulative, and if you are going to do a lot of traveling by air, every X-ray inspection will add a certain amount of destructive, cumulative X-rays that can completely spoil the results of your photographic efforts.

PROCESSING

For the journey I packed lots of Kodak Kodachrome 25 Film, High Speed Ektachrome, both daylight and tungsten, and some Tri-X. As far as film processing is concerned, if you're traveling for only a few weeks, your best bet is to ship your film home for processing, since in most European countries Kodak labs take from two to three weeks to process a roll of film. The exception is England, where Kodak

maintains a convenient drop-off office in the heart of London. They will return your film in two days, if you pay the extra 75¢ per roll. For more information on film processing abroad Kodak puts out an excellent pamphlet that can be had by writing to Eastman Kodak Company, Customer Service, 343 State Street, Rochester, New York 14650. The pamphlet lists Kodak international photographic departments, laboratories and services they offer.

EDITING

Selectivity is perhaps the most difficult part of any trip—editing and refining your, hopefully, huge assortment of slides and pictures into a fairly comprehensive, yet easily seen presentation. There is nothing more boring than a photographer who, upon his return home, insists upon showing each and every photograph made, even if the picture is over- or underexposed, of poor content or whatever else conspires to go into the making of a poor photograph.

Be selective, particularly if you're going to try to sell your photos to a magazine or other type of periodical. Be professional in your editing and your presentation.

In order to be certain of enough of a selection be certain to study your subjects when you come upon them. Be patient, look around and carefully set your camera prior to taking a picture. That is, adjust it to the prevailing light and to the lighting conditions at hand.

Take a guided tour, if you must, and take the time you may need to record what you see. Walk around your subject, look for the best possible angle, composition and lighting.

There is no way any photographer can tell another photographer how to see a certain subject. Interpretations are as varied as the photographers aiming cameras at a subject. But do try to be very selective! Do bracket your exposures! Do not be afraid to use film! The photographs shown along with this article represent only a fraction of what I've done in the past five months. They are only representative of where I have been and what I've seen. Remember, whenever you click your camera shutter, you are permanently recording your impression of something and then trying to share it with others. So be professional in your viewpoint, and when you do share a moment or an emotion with someone, it will be seen the way *you* saw it, in all its subtle glory or all its strident, clarion call to others to emulate your efforts. □



Photographic's SPEC SHEET

LENS: 16mm f/3.5 Olympus
OM-System Zuiko



ANGLE OF VIEW: 180°
NUMBER OF ELEMENTS: 11
 elements in 8 groups
ACCESSORY SIZE: None
APERTURE RANGE: f/3.5 to f/22
FOCUSING RANGE: 7.9 inches (.2
 meters) to infinity
CLOSE FOCUS MAGNIFICATION: 1:8
DEPTH-OF-FIELD SCALE: Yes
INFRARED FOCUS MARK: Yes
LENS COATING: Magnesium fluoride
WEIGHT: 6.3 ozs. (180g)
FINISH: Black anodized
**LENGTH FROM FRONT TO
 FLANGE, AT INFINITY:** 1.2 inches
 (31mm)
MAXIMUM BARREL DIAMETER: 2.3
 inches (59mm)
CLICK STOPS: Full-stop detents
**ROTATION DIRECTION FROM
 INFINITY TO CLOSE-UP, IN USE:**
 Clockwise
BUILT-IN LENS HOOD: No
SPECIAL FEATURES: Built-in yellow,
 orange and UV filters; no mirror
 lock-up is required for use
MOUNTS AVAILABLE: Olympus OM
 series
PRICE: \$549.95, includes front and
 rear lens caps and case
DISTRIBUTOR: Ponder & Best, Inc.,
 1630 Stewart Street, Santa Monica,
 California 90406

LENS: 75-150mm f/4 Olympus
OM-System Zuiko Zoom



ANGLE OF VIEW: Min. 16°, max. 32°
NUMBER OF ELEMENTS: 15
 elements in 11 groups
ACCESSORY SIZE: 49mm
APERTURE RANGE: f/4 to f/22
FOCUSING RANGE: 5 feet 2½ inches
 (1.6 meters) to infinity
CLOSE FOCUS MAGNIFICATION:
 Min. 1:18, max. 1:9
DEPTH-OF-FIELD SCALE: No
INFRARED FOCUS MARK: No
LENS COATING: Magnesium fluoride
WEIGHT: 15.2 ozs. (430g)
FINISH: Black anodized
**LENGTH FROM FRONT TO
 FLANGE, AT INFINITY:** 4.5 inches
 (115mm)
MAXIMUM BARREL DIAMETER: 2.5
 inches (63mm)
CLICK STOPS: Full-stop detents
**ROTATION DIRECTION FROM
 INFINITY TO CLOSE-UP, IN USE:**
 Clockwise
BUILT-IN LENS HOOD: Yes
SPECIAL FEATURES: Built-in grip
 lens hood; rubberized
 diamond-knurled focusing ring
MOUNTS AVAILABLE: Olympus OM
 series
PRICE: \$369.95, front and rear lens
 caps and case
DISTRIBUTOR: Ponder & Best, Inc.,
 1630 Stewart Street, Santa Monica,
 California 90406

LENS: 50mm f/3.5 Olympus
OM-System Zuiko Macro



ANGLE OF VIEW: 47°
NUMBER OF ELEMENTS: 5 elements
 in 4 groups
ACCESSORY SIZE: 49mm
APERTURE RANGE: f/3.5 to f/22
FOCUSING RANGE: 9.1 inches (.23
 meters) to infinity
CLOSE FOCUS MAGNIFICATION: 1:2
DEPTH-OF-FIELD SCALE: Yes
INFRARED FOCUS MARK: No
LENS COATING: Magnesium fluoride
WEIGHT: 7.1 ozs. (200g)
FINISH: Black anodized
**LENGTH FROM FRONT TO
 FLANGE, AT INFINITY:** 1.6 inches
 (40mm)
MAXIMUM BARREL DIAMETER: 2.4
 inches (60mm)
CLICK STOPS: Full-stop detents
**ROTATION DIRECTION FROM
 INFINITY TO CLOSE-UP, IN USE:**
 Clockwise
BUILT-IN LENS HOOD: No
SPECIAL FEATURES: Automatic
 correction lens group for close-focus
 aberrations
MOUNTS AVAILABLE: Olympus OM
 series
PRICE: \$269.95, front and rear lens
 caps and case
DISTRIBUTOR: Ponder & Best, Inc.,
 1630 Stewart Street, Santa Monica,
 California 90406

BLUEPRINT SERIES

How To Construct a Right-Angle Print Projection Device

BY WALT SENG

PROJECT: To construct a device for making photographic prints up to mural size on an easel at a right angle to the enlarger.

PURPOSE: To facilitate making large photographs on enlargers with fixed heads, such as the Omega series.

EQUIPMENT: 1. Front-surface mirror, 1/4-inch floatglass type, 4x4 inches in size; 2. Piece of 3/16-inch Foamcore-type board, approximately 15x30 inches; 3. Masking tape; 4.

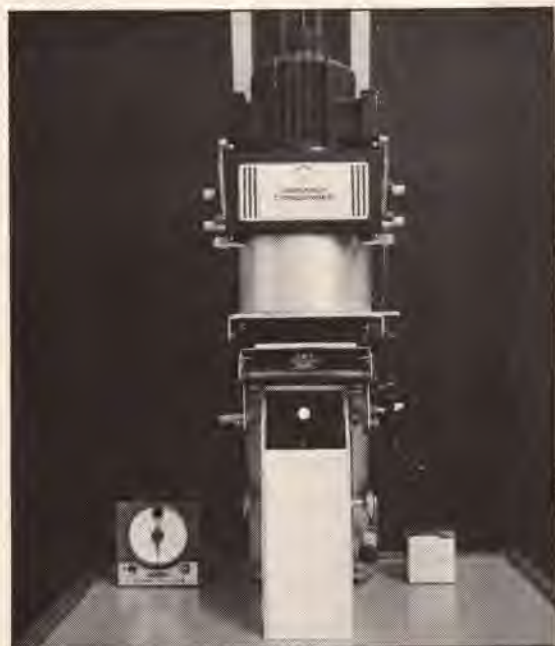
Utility or X-acto knife; 5. 45° triangle; 6. Ruler/straightedge; 7. Elmer's glue; 8. Straight pins (4).

ASSEMBLY GUIDE: It is necessary to stress that all measurements and cuts be precise for this gadget to work accurately. In illustration No. 1 note lines A, B and C. These lines are not cut all the way through but scored after being backed with tape. See illustration No. 6 for position of tape on seams. The corners of this device are not de-

signed to fit flush. They will remain open when properly constructed. Photo No. 1 and illustration No. 6 should clarify this point. This feature will not affect the stand's durability; it simply makes it easier to construct. The final seam is glued and then held in place with straight pins.

CONSTRUCTION: Measure and mark parts of the stand as shown in illustrations No. 1 through 5. Mark lines A, B and C (illustration No. 1) and cover with masking tape. Turn this

ALL PHOTOS BY THE AUTHOR



45° mirror in place under enlarger.



1. Completed right-angle print projection device.

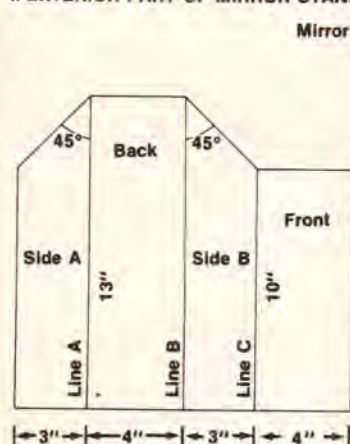


2. Photo showing easel's relationship to enlarger.



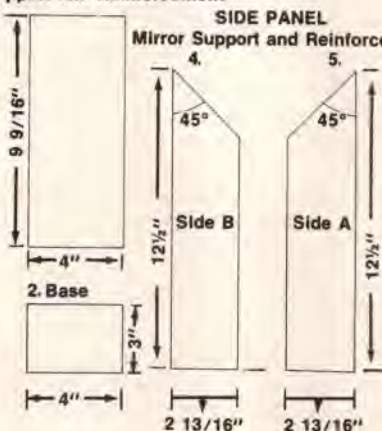
3. Photo displaying projected image on 30x40 easel.

1. EXTERIOR PART OF MIRROR STAND

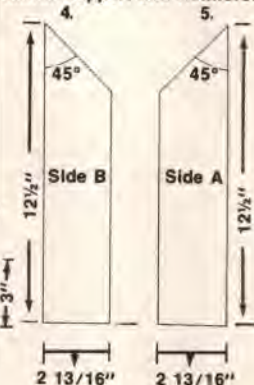


Lines A, B and C are backed with masking tape and then scored with a sharp knife.

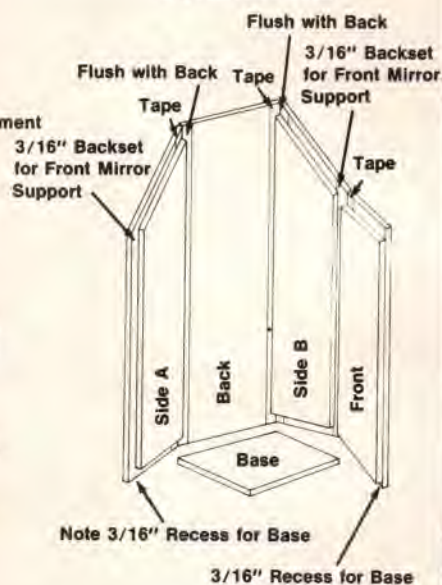
3. FRONT PANEL Mirror Support and Reinforcement



4. SIDE PANEL Mirror Support and Reinforcement



6. Foamcore Pattern



part of the construction over, mark that side with lines A, B and C and score along those lines, taking care not to cut all the way through the tape. The purpose of this procedure is to make hinges to hold the sides together. Coat one side of the part called the "Front Panel Mirror Support and Reinforcement" (illustration No. 3) with glue and press into position on the front panel. The top edge must be 1/4-inch down from the top of the front panel. The bottom of the support will be 3/16 inch from the bottom of the front panel.

Next glue the "Side Panel Mirror Support and Reinforcement" (illustrations No. 4 and 5) into position against their respective sides. The long edge of the side supports should be flush with the back edge of the side panels A and B. There will be a 3/16-inch space left at the front of these pieces to accommodate the front mirror support. After the glue has dried somewhat, fold the stand together and fasten loose ends. Glue and straight pins will do the trick.

Now turn the stand over and drop some glue into the bottom of the stand and insert the base. The piece should fit easily but snugly. Next, wrap

the bottom with tape to hold it securely while the glue dries. (It won't hurt to keep the tape there after glue has dried.) After the glue has dried, remove the pins from the side seam. Drop the mirror into place at the top of the stand. If you are the nervous type, you might secure the mirror around the edges with tape.

GENERAL DISCUSSION:

Photos No. 2 and 3 show the plan for use of the right-angle mirror device. The easel shown in the photos is merely for demonstration purposes. You can devise a functional, homemade easel using homote and pushpins. Or if you don't invent your own in the meantime, wait until I describe one in a future "Blueprint."

To use the mirror device drop the head of your enlarger to the mirror. In order to project your full image the lens must be close enough to the mirror so that the entire image is reflected. Square up the mirror stand with the enlarger and easel. To do this you can mark a line parallel to the easel on the baseboard of the enlarger. You will find that you must insert the negative into the enlarger emulsion-side up. This is necessary because of the inversion of the

image by the mirror.

A simple caution: This gadget cannot be made with a normal mirror. A rear-coated mirror reflects the image after it has gone through a thickness of glass, and the image is then again reflected back through another thickness. The result is a double image—which might be a nice effect in some instances. Surface-coated glass is expensive and must be ordered and custom-made for your needs. You can find a source by contacting a glass dealer in your area.

This mirror device will not be for everyone. Those of you who own Durst, Beseler and similar enlargers needn't bounce your images off mirrors to project onto wall-mounted easels. You can simply rotate the heads of your enlargers to gain the same benefits Omega-type enlarger owners must get with the 45° mirror. The purpose of this "Blueprint" is to get everyone off on the same footing so that you'll all be able to construct and use devices that will be described in upcoming articles. These gadgets will enable you to make very large prints with a minimum of space and hassle. □

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GOOD NEWS!

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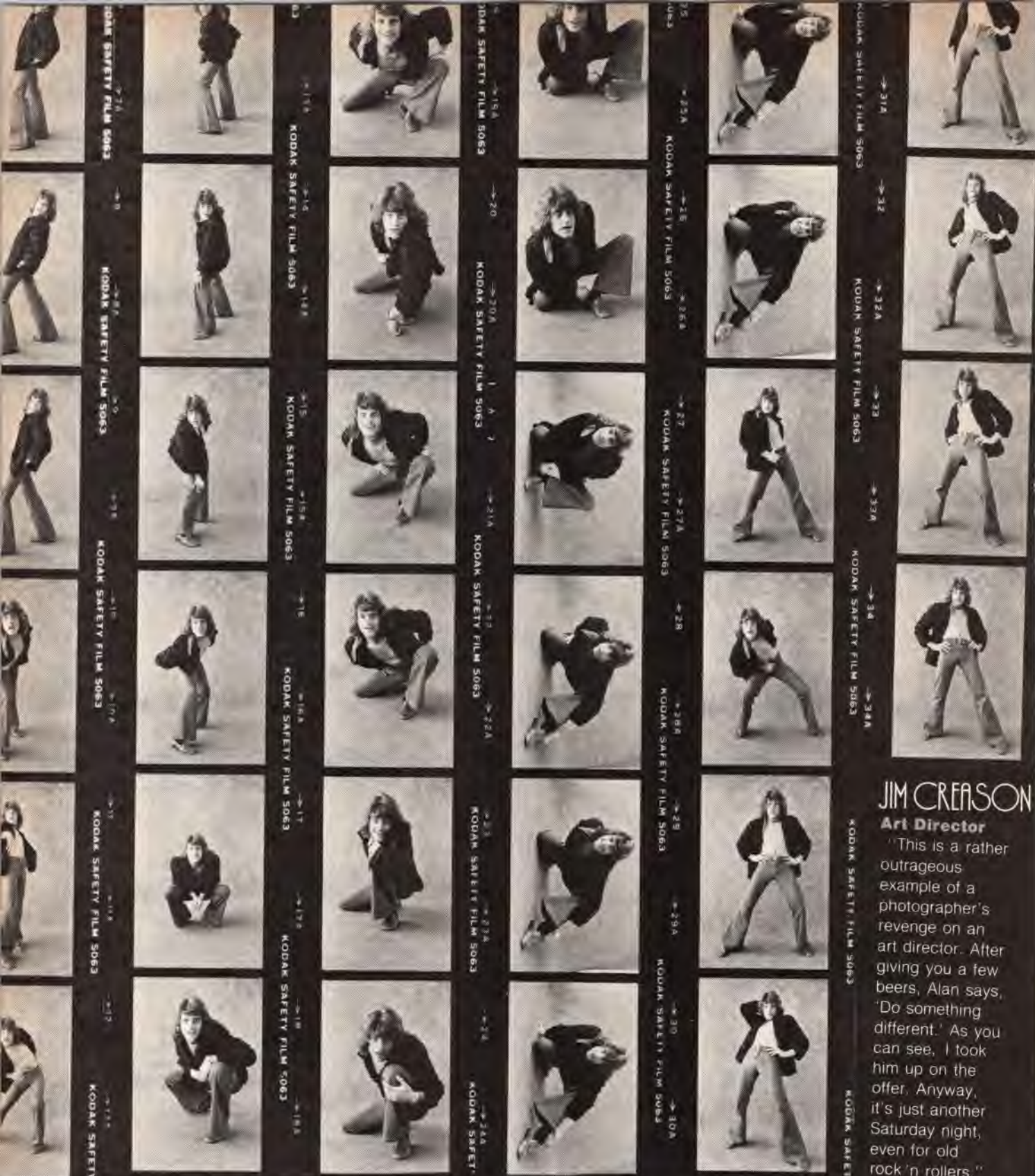
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JIM CREASON Art Director

"This is a rather outrageous example of a photographer's revenge on an art director. After giving you a few beers, Alan says, 'Do something different.' As you can see, I took him up on the offer. Anyway, it's just another Saturday night, even for old rock 'n' rollers."

PHOTOGRAPHIC ROAD TESTS ALAN BERGMAN. GEARING UP FOR A GREAT PERFORMANCE

BY ALAN BERGMAN AND THE STAFF OF PHOTOGRAPHIC MAGAZINE



□ What is your experience when photographing people? Most of us, when asking a friend or family member to sit for a portrait, encounter reactions like, "Oh, I never take a good picture," or, "I hate being photographed." The negative feelings and fears people exhibit when having their pictures taken often parallel those of going to

the dentist. Of course, you'll find some who enjoy the attention, but most folks worry about that flaw on their nose, or they remember uncomfortably the last photograph where somehow they looked older or heavier than they *really* are. For many, a portrait session can be a painful reminder of rather unpleasant memories.

The name of the portrait game is dealing with people. It's a matter of

knowing your subjects and getting them to relax. Photographing the staff of PhotoGraphic proved to be an extraordinary challenge. Their knowledge of photography and tricks of the trade made many of them more uptight than most subjects.

The first order of business was to control all technical variables and to create an environment in which the subjects could relax. When photographing nonprofessional models, I would rather leave my attention-demanding strobe equipment in the closet. I prefer to use the light coming from a 8x12-foot window at one end of my studio. This constant source of natural illumination is not only flattering to the people being photographed, it's also a lot less intimidating than banks of studio strobes and other lighting paraphernalia. The background I like to use is a 10x20-foot canvas painted with three shades of medium gray latex. I find Kodak Tri-X Film compatible with my window light for speed and shadow detail. For this series of pictures my average exposure was 1/60 at f/8. I used 28mm, 35mm, 50mm, and 85mm Nikkor lenses on Nikon F2 camera bodies.

Once free of technical concerns, I can devote full attention to making my subjects comfortable. In the case of the PhotoGraphic session some down-home hospitality was called for. A few dollars spent on wine, beer, soft drinks and snacks created an amazing transformation in the shooting atmosphere. Before I knew it, the uptight show-me attitude had changed into a free-spirited party mood. Most inhibitions were gone; Extraverts were ready to perform, and the introverts were less reserved.

At this point my real work began. As the photographer-director I had to maintain control of the shooting session. Too much good cheer can ruin a shooting. I made it clear why everyone was there and who was the boss. At all times I had to remain sensitive to what my subjects would and could be made to do.

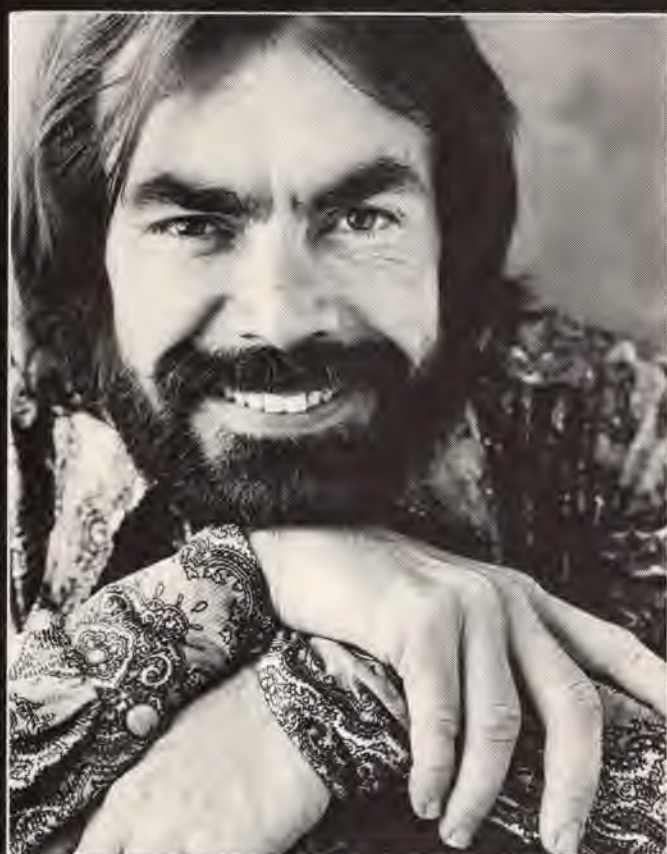
In the process of shooting I found it necessary to constantly talk, shout, whisper, laugh, make faces or jump up and down to prompt the expressions I wanted to capture. I found myself almost becoming two people at once. From all outward appearances, although I must have seemed an



STEVEN ROSENBAUM

East Coast Editor

"In this world there are two kinds of photographers—introverts and Alan Bergman. The bubbly enthusiasm that I saw in Alan during this session reminded me of an overcharged strobe about to go off. Alan is, in fact, a very perceptive and sensitive person as well as being a talented photographer; however, during the shooting, he appeared to change dramatically. In fact, I felt that he chose to capture my *reactions* to his exaggerated dramatic antics rather than to draw me out as a subject. This technique may provide comfort to some people when sitting before the lens; as for me, I would much prefer the human *interaction* that I first responded to."



MIKE STENSVOLD

Special Projects Editor

"Alan produced this photo by using his technique of being loud and boisterous, which caused my normal self-conscious in-front-of-the-camera snarl to briefly become a rare self-conscious in-front-of-the-camera smile. All photographers could benefit from getting in front of the camera once in a while, so they'll know how their models feel (uncomfortable), and I would like to have stayed in front of Alan's camera longer, but my aardvark caught fire, and I had to go extinguish it."

KAREN SUE GELLER

Managing Editor

"I was anything but eager to have my picture taken when the appointed day arrived—I was feeling more-than-normally busy and fat. Alan managed to put the crew at ease, however, and we began. His shouting technique relieved tension, cleared the air and everyone laughed. Alan proved to be a good host and psychologist while I passed an enjoyable afternoon. The photographs speak for themselves."

absolute nut and clown, I was also constantly analyzing the variables of personality, action, composition and design.

Jim Creason, PhotoGraphic's art director and an aspiring rock star, was remarkably easy to shoot. Minimum encouragement and direction were needed to sustain his enthusiasm. On the other hand, Mike Stensvold, who prides himself on his morose demeanor, was more of a challenge. I asked him to straddle one of my studio chairs while resting his hands on its back. Relaxing him in this way, I was able to evince a smile from his otherwise stolid face. Joan Yarfitz proved to be the classic "I never take a good picture" person. I think her portrait proves her initial apprehensions were unfounded.

I encouraged everyone to bring a variety of costumes and accessories, and Karen Geller's and Natalie Carroll's outfits were the icing on the cake. I included three photographs of Karen to illustrate how subtle direction and encouragement can provide interesting variations on a theme. Brent Salmon and Paul Farber, the two "old men" of the outfit, seemed most cooperative. Little was needed but to compose them, paying close attention to arrangement of arms and legs.

Steven Rosenbaum seemed a natural for my kiddie chair. The distortion afforded by a 28mm lens amplified the already present big-small contrast. Bonnie Sadkin and Scott McLean work together. They, therefore, were the perfect duo for a classic "young



couple" portrait. Last, but not least, Markene Kruse-Smith threw a coquettish pose at me, and I was lucky enough to be ready. So much for timing!

Portrait sessions can be fun for the subjects as well as the photographer. Once the technical details are worked out and a comfortable environment for picture taking is created, both the photographer and his models can relax. As evidenced by the photographs on these pages, during my session with PhotoGraphic's zany crew, a good time was had by all. □

JOAN YARFITZ

Associate Editor

"The entire notion of this session horrified me from its inception. Usually, I will go to great lengths to avoid being photographed, especially by those who claim to be "people" photographers—they're usually the worst, coming within inches of your face, with something like a 21mm lens, to get that special "arty" effect—the results resembling the outtakes from a shoot of the sideshow of Ringling Bros., Barnum & Bailey Circus. In this case, however, Alan seemed to know what he was doing; he kept his distance with a 55mm lens, and he became the clown! The result is one of the most relaxed, natural-looking portraits ever taken of me."



NATALIE CARROLL
Administrative Assistant

"Standing in front of a camera usually reminds me of that dreadful time of awkward adolescence when one would prefer to be invisible and hates to be stared at. But I also have a mildly exhibitionist side that comes out at dance class or parties. The atmosphere of the studio made me feel I was on stage and performing, and Alan's fast line of banter kept me responsive and mobile. I forgot that he was staring at me through the lens, and instead of worrying about my face being appropriately smiley, I enjoyed playing with the shape of my full, swirling pants."



BONNIE SADKIN
Advertising Assistant and
SCOTT McLEAN
Western Advertising Manager

"Why are these people smiling? We're a strange combination in front of a camera—the ad man relaxes while his assistant panics! Alan does make you feel comfortable. He goes out of his way to bring out the best in his subjects with glib talk and well-timed jokes. While we approached the photo session with high spirits on one hand and some trepidations on the other, when the picture taking was finished, we found he'd turned us into easy riders after all."



BRENT H. SALMON
Publisher and
PAUL R. FARBER
Editor

"Amazing! The compact, economy Bergman went from zero to 36 in 18 seconds flat! Considering that the Bergman uses an automatic drive, instead of a conventional shift, makes the feat nonetheless remarkable. However, on second thought, Bergmans are known for idling at f/1.4. Perhaps this accounts for the overall pep and performance that we witnessed. Now, if it could get 72 exposures to the roll, we'd consider buying one for staff use. Obviously, it would reduce our overhead. Maybe next year's model"



MARKENE KRUSE-SMITH

Movie Editor

"Alan Bergman's secret is to fill you up with cheap red wine and M&Ms candies and tell ridiculous jokes. Then he brings out this pet parakeet and makes it do tricks. Watch the birdie? It's easy when Alan's behind the camera. He elicits a delightful craziness in even the most reticent of subjects. This photographer's got pizzazz!"



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HIGH-KEY PHOTOGRAPHY

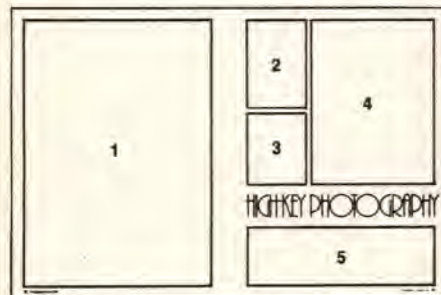
FROM MYSTERY TO MASTERY BY DAVID BROOKS



HIGH-KEY PHOTOGRAPHY

I recall, as a student in basic photography, the most dreaded assignment was to photograph a white subject on a white background. I can still hear the curses that fell on those white cups and saucers, and it was a wonder that the white chrysanthemums I struggled to photograph didn't wilt in the atmosphere of tension! Often alluded to as a special effect, or at least a highly sophisticated technique, the term "high-key" has acquired a stigma of difficulty that is wholly undeserved.

Making a high-key picture should be no more difficult, no greater challenge, than making any other kind of picture. Surely, photographing a white subject against a white background requires some careful attention to technique, but then *any subject should* if precise photographic representation is sought. A high-key shot shouldn't stir any more adrenalin than any other subject or technique if high-key is defined realistically and a straightforward approach is taken.



1. Illustration of off-white outfit photographed with Mamiya M645 and 110mm 1/2.8 lens on Kodak Ektachrome-X film. Lighting was Ascor QC8 strobe with one flash head in a Reflectasol 72-inch umbrella with two additional flash heads in Reflectasol Soft Boxes directed at each side of the background from just behind the subject.

2. Still life photographed with Mamiya M645 and 45mm 1/2.8 Mamiya/Sekor lens on Ektachrome-X film. Available light was used from the window behind and skylight above and to the right of subject.

3. High-key setting photographed with Mamiya M645 and 80mm Mamiya/Sekor lens on Kodak Professional Ektachrome Daylight Type film. Lighting was Ascor QC8 strobe with one flash head in a Reflectasol 72-inch umbrella and a second flash head located immediately behind and above subject directed at background.

4. Glamour portrait photographed with Mamiya M645 and 150mm 1/4 Mamiya/Sekor lens on Professional Ektachrome Daylight Type film. Lighting was Broncolor 212 strobe with one flash head in a Reflectasol 72-inch umbrella and one flash head hidden behind subject directed on background.

5. Glasses photographed in silhouette with Toyo Field camera and 190mm 1/4.8 Ilex Acuton lens on Kodak 4x5 Ektachrome Daylight Type film. Glassware was placed on Technal Transi-Table and lit from behind with Broncolor strobe and a single flash head.

WHAT IS:

A HIGH-KEY PHOTOGRAPH?

A HIGH-KEY TECHNIQUE?

A HIGH-KEY EFFECT?

Much of the mystery surrounding high-key stems from considerable confusion between these three distinct realities: a high-key *photograph*, a high-key *technique* and a high-key *effect*. Any meaningful discussion must embark from a point of mutually agreed on facts of reality, so I will arbitrarily define high-key as broadly as possible; we can then proceed from there.

If a picture is made up of predominantly light tones with some middle tones and a very few small areas of dark tones, it can be considered a high-key *photograph*. For those familiar with the Zone System the preponderance of tones in the image would be in zones 7, 8 and 9, with some tones in zones 4, 5 and 6, a very few small areas in zones 1, 2 and 3.

If a high-key photograph is made up of mostly light tones, it can then be assumed that the *technique* used to produce such an image first involves the choice of a subject made up primarily of light tones, and the method of photography should be one that accurately reproduces the values in the scene.

A high-key *effect* is the simulation of the characteristics of a high-key photograph of a subject not within the definition of high-key by means of non-standard, special techniques.

THE HIGH-KEY SUBJECT

There are essentially two avenues to acquiring a high-key subject, one active and one passive, with some ground in between. Which way to go will depend mostly on personal inclinations. If you have patience and prefer natural subjects, you may want to look for high-key elements to occur naturally. This is what I call the passive approach. Obviously, if you live in an area that receives an abundant snowfall, your winter will be full of high-key opportunities. If you live in a temperate climate, you will have to be somewhat more diligent in your search. Perhaps you have seen ideal subjects that you plan to return to for great pictures. One that strikes my imagination as a good example that I have never taken

the time to photograph is the rows and rows of identical white houses rolling over the hills of Daly City, California. No doubt your taste, experience and imagination will afford equally interesting possibilities.

Or you may be like me and find it easier to be the active type and purposely create the elements in a scene to be photographed. Even the obvious solution of finding a blonde model, outfitting her in white and photographing her against a white background holds the potential for visual excitement and rewarding challenge. And you never know when you might have a request to do a bridal portrait where the exercise will come in handy.

There are a variety of possibilities for creating high-key pictures by taking a high-key subject and finding an appropriate existing background or setting. An example might be to create a portrait of a blonde subject against a bed of white flowers or to photograph a skier in a white outfit on the slopes.

HIGH-KEY LIGHTING

Since the range of values in a scene is the sum of the lighting ratio and the subject's reflective range, you may end up with a full-scale photograph of an all-white subject instead of a high-key one if your lighting creates too much contrast. Soft, relatively flat light is preferable, but that does not preclude working in full sunlight. If your subject is small enough, you can reduce the lighting contrast by using an efficient reflector like the Larson Reflectasol Super Silver Square umbrella. If the subject is large, then you may have to be patient and wait for either an ideal angle of the sunlight that will keep strong shadows to a minimum or a partially overcast day.

The same principle applies to indoor lighting. It should not create too much shadow content in the scene. Whether you are using a studio with a paper seamless background or a setting in a room with light walls and furnishings, it's advantageous to keep your lighting simple.

Simple lighting is best accomplished by using a single broad light source for the subject, such as a large umbrella, and keeping the source close to the camera position to reduce cast shadows to a minimum. If an umbrella is not available, you can bounce light off a white sheet or a piece of white seamless background paper. You might try hanging the paper at camera position and then cutting a small window in the paper to shoot through. A second light for the background will likely be



needed, and it should be placed either over and behind the subject's head or hidden by the subject to again reduce cast shadows. If you want a burned-out white background, the light on the background should be from $\frac{1}{2}$ to one full f-stop more than the light on the subject.

HIGH-KEY EXPOSURE AND CAMERA TECHNIQUE

The characteristics of film, whether for color slide, color negative or black-and-white, remain the same for all subjects. With a few rare exceptions, such as a white egg on a white background, a high-key subject will have the same *range* of tones as any other subject, but *more* of its area will be in light tones. It would be totally illogical, therefore, to assume that a particular exposure which produces ideal negative/positive densities would require any modification when making a high-key photograph if the light level remains constant.

The only special consideration is how to meter (measure) a high-key subject. The easiest and surest method is to measure the light falling on the subject (an incident reading) and base your exposure on that reading. But even with incident meters, there are special factors to keep in mind. Incident meters with a sphere light receptacle may tend to overread the scene. Thus, a flat disk receptacle is preferable for reading light in a high-key scene.

When using a built-in camera meter,

bear in mind that if you expose a high-key scene according to the camera meter reading, you will be underexposing from $1\frac{1}{2}$ to three f-stops. You will want to base your readings, therefore, on the measurement of light falling on an 18-percent gray card at subject position. Actually, four gray cards glued to a single sheet of cardboard are better than one, allowing a reading that more closely corresponds to the shooting distance from the camera for most subjects.

Even if your camera meter is giving you exposures of normal scenes that are acceptable, you may want to test the use of the 18-percent reflectance gray card before committing much film to the technique. The reason for this is that some cameras are not set to meter an average scene at an 18-percent reflectance value. Therefore, the use of the gray card may require a small adjustment in the effective film speed you use. If you are not sure how to proceed with such a test, you may want to refer to "One to One" in the April, 1976 issue.

To avoid problems that may go unnoticed when working with average subjects, some greater pains should be taken with high-key projects. It's wise to use an efficient lens shade, as there is a greater quantity of light passing through the lens that may cause flare from reflections from the inside surfaces of the lens barrel and camera body. Keep such flaring to a minimum with careful lens shading. This is par-

Photo made with a Canon F-1, 100mm 1/2.8 lens and Komura Telemore 95 II tele-extender on Kodak Panatomic-X Film, developed in HC 110 Dilution-B for five minutes at 68°F. Lighting was Broncolor 212 strobe with three flash heads bounced off ceiling and white seamless background hung at camera position with window cut to shoot through.

ticularly true when using a white background that is receiving more light than the subject. Also, you should take notice of any light that is reflected from the background onto the subject—this might tend to create a tone merger between a part of the subject and the background.

HIGH-KEY BLACK-AND-WHITE FILM PROCESSING

Even if your high-key subject is a platinum blonde with fair skin in a white gown against a white seamless paper background, you still have a scene with a full tonal range. Lips, eyes, eyelashes and eyebrows may only comprise a minute portion of the total image area, but they are dark tones, and skin is a middle tone. Don't be misled into thinking you have an abnormally low contrast scene just because of a preponderance of whites. You will want to use a normal developing time that produces negatives from average scenes that print a full range of tones on grade No. 2 paper.

This is as good a time as any to mention that any black-and-white film will work with high-key subjects. If, however, your subject has a lot of fine detail and considering that there are often many subtle tone gradations in a high-key subject, you may want to use

HIGH KEY PHOTOGRAPHY

one of the slower, fine grain films (Kodak Panatomic-X, Ilford Pan-F or Adox KB-14). Use an appropriate developer to preserve those delicate tone separations. With subjects that do not contain much detail and when tone separation is not crucial, grainy high speed films can create interesting effects. You might even try Kodak 2475 Recording Film with an active developer like Kodak HC-110 Dilution-A or DK-50 for grain that gets very open and lacy with a high-key subject in a large print.

HIGH-KEY EFFECTS

Using a technique to simulate actually photographing high-key subject usually has to be considered a second choice, an unavoidable alternative, as most of these techniques are compromises that involve a modifier that degrades some aspect of image quality. If, however, the final image desired is one that is not a true representation of the subject, then a special high-key technique could be a primary choice.

There are so many ways of simulating high-key that you could never be aware of all of them. Which way to go will depend very much on subject characteristics and lighting. Most of the techniques rely at least in part on some degree of overexposure in the camera. This may be combined with an optical modifier (diffusion or fog filter) to scatter some of the light from the highlight areas into the shadow areas to increase their density. These two techniques (flare and overexposure) work particularly well when the scene is backlit.

Again I must call attention to the fact that any reliance on an in-camera meter to facilitate this method will very likely result in severe underexposure. Using a narrow-angle spot meter to read the critical areas in which you wish to maintain detail is a good base for making an exposure calculation. Then shoot and bracket your exposures, if possible. Otherwise, you can only hope the flare doesn't wipe out too much highlight detail.

Another way to accomplish some of the same objectives of filling in the darker areas with more light is to subject the film to a small flash exposure. If your camera permits double exposures, you can make an exposure of a

Model in clown-white makeup photographed with Canon F-1 and 50mm Canon lens on Kodak Panatomic-X Film developed in Kodak HC-110 Dilution-B. Lighting was Broncolor 212 unit with three flash heads bounced off ceiling, one in front of subject, two slightly behind and to each side of background.



white card out of focus at a small fraction of the setting for the scene, and then expose the subject normally on top of that. This technique has limited value, as it is primarily a contrast-reduction method, but at least it doesn't appreciably degrade image sharpness. If you want to use this technique most effectively, the flash exposure should be carefully designed to only expose those shadow areas you want to get rid of while barely affecting the important highlight areas of the image. Selective flashing would be most appropriate with a large format camera with a ground glass that you can mark on with a grease pencil.

There are also several darkroom techniques, mostly applicable to black-and-white, that will simulate or enhance a high-key effect. Variable contrast enlarging papers allow you to make an initial exposure with a low contrast filter for the light tone areas while holding back any large dark areas in the image. Then use a high-contrast filter for a short exposure to give some punch to the print, again holding back any large shadow areas. If there are no large dark areas in an image, sometimes just a light print on low contrast paper will simulate high-key. If such a print seems a little too flat and lifeless, you'd be surprised by what a brush, some Spotone and a little time will do to make it sparkle with just a few dark accents.

A carefully selected contrast grade and an appropriate texture screen can be combined to make the effective contrast of an image lower—the print lighter—without losing too much high-light detail. While an even more involved and less predictable technique is to make a film positive, expose it to light partway through development (just enough to reverse some of the shadow areas by partial solarization), and then make a negative for printing from the film positive.

Simulating a high-key photograph calls for special techniques, any one of which is difficult and complex enough to be a subject of an article in its own right. Making a true high-key photograph involves nothing special, except a little extra care with lighting and exposure. Approaching high-key photography, therefore, in a straightforward way by the selection or creation of appropriate subjects and the application of simple, basic photographic procedures is the easiest way to get into a technique that produces exciting challenges to the imagination and striking results. □

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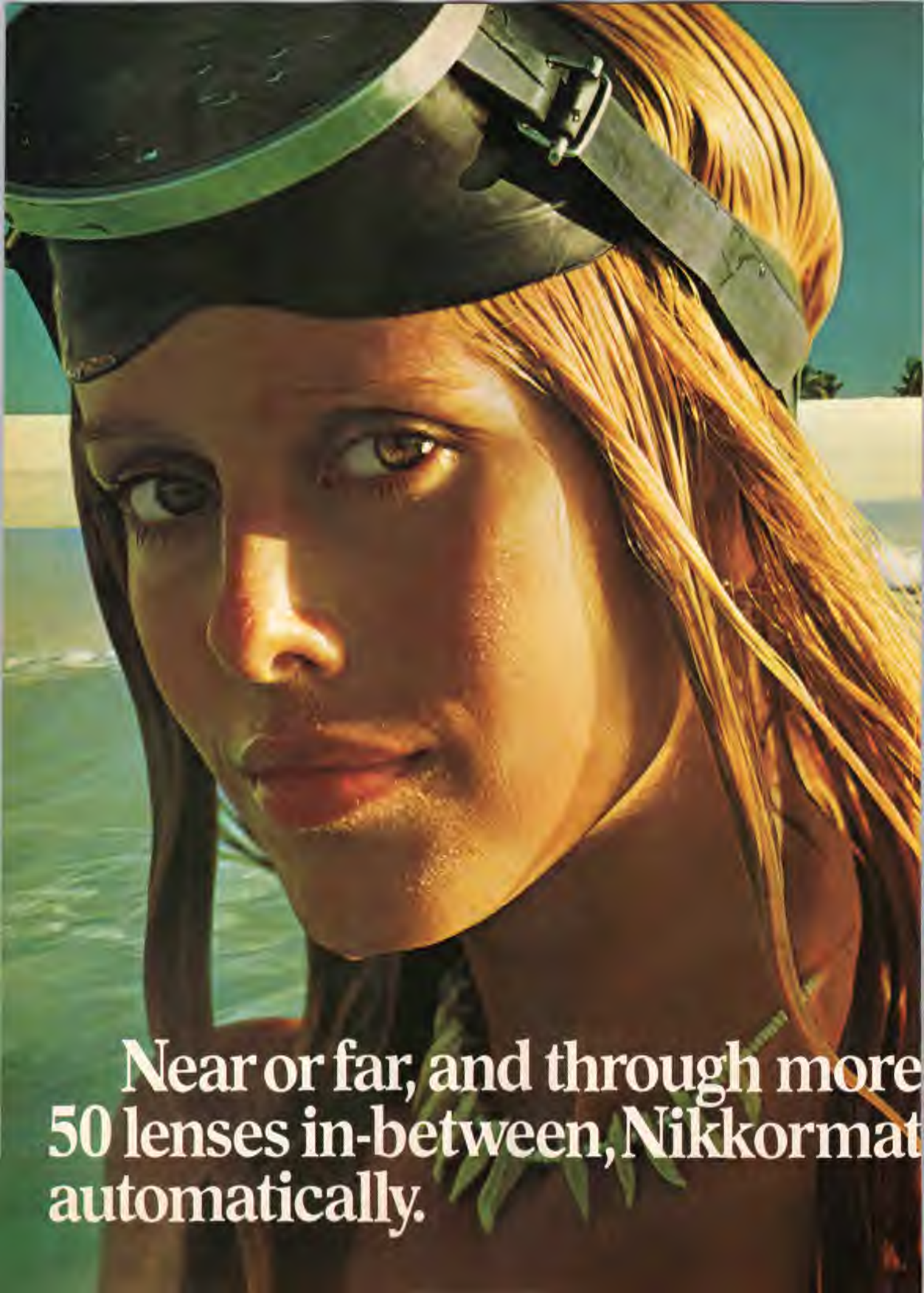


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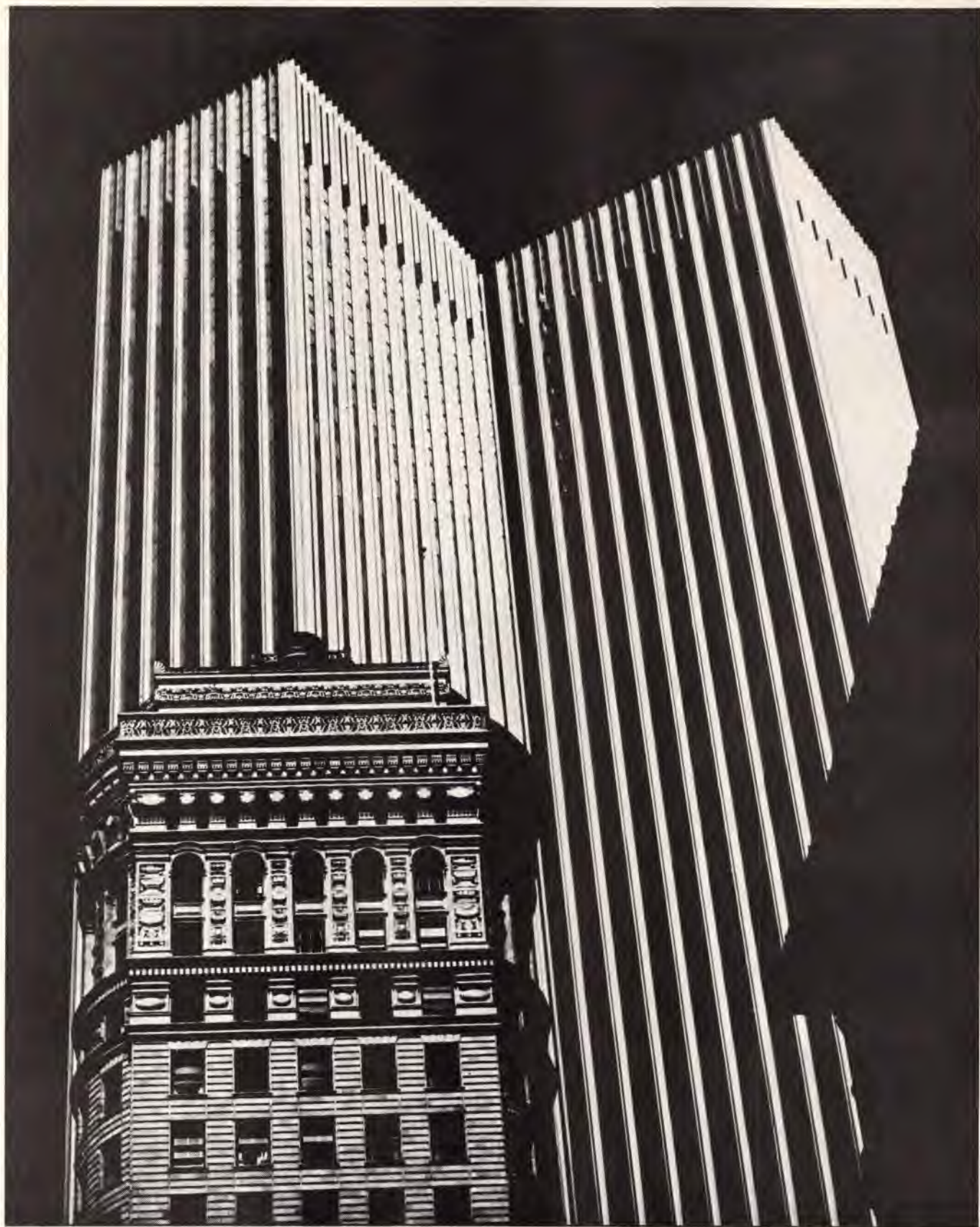
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GALLERY '76

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1. Photographer Frank Spadarella was intrigued by the contrast between these two San Francisco buildings. He photographed the structures at an angle where they juxtaposed, using a Hasselblad and 50mm Distagon lens, with a red No. 25 filter to darken the sky. He developed the film, Kodak Panatomic-X, in Rodinal, then printed the negative on Agfa Brovira No. 6 paper to further emphasize the contrast between old and modern architectural styles.

2. Bob Catalano created this swirling, abstract image by using a 2½-second shutter speed at f/5.6. He exposed Kodak Tri-X Film at E.I. 1200 in a Canon F-1 with 200mm Canon lens and developed the film in Kodak D-76 before printing negative on Kodak Kodabrome RC paper.

3. George Radda photographed this graphic landscape with a Mamiya RB-67 and 90mm Mamiya/Sekor lens. Original picture was made on Kodak High Speed Ektachrome Film, then printed onto Ilford Velvet Stipple paper from a Kodalith negative to achieve the high-contrast effect.

4. Several techniques were used by Rick Bursky to make this strange photo. He first photographed a mannequin in a store window with a Canon F-1 and 50mm Canon lens. Exposure was 1/60 at f/2.8. He then printed the photo on Agfa paper three times, solarizing the middle shot. The three prints were mounted together, resulting in an intriguing photomontage.

5. Peter Forman made this nonobjective photo without a camera. It is a photogram made under the enlarger light in the darkroom by printing through liquid dyes and cardboard forms to create a graphic composition. Image was made on Agfa Portriga paper.



1. Anthony Neste photographed the graphic image of this railroad signaling device against an early evening sky with a Nikon F2 camera and 35mm Nikkor lens loaded with Kodak High Speed Ektachrome Film exposed for 1/30 at f/11.

2. Robert Karopp combined shot of sunset over the Rocky Mountains with multiple-exposure shot showing images reflected into a front-surface mirror and photographed in progressive stages as he zoomed the lens out. To obtain final photo the images were projected simultaneously onto a screen and rephotographed. Original photos and final, composite photo were all taken with Nikon F2 with 80-240mm Schneider-Kreuznach lens and Kodak Kodachrome II Film; exposures were not recorded.

3. Swirling patterns of duck formation and water ripples combine with blue hues to give this scene a tranquil feeling. Joseph Ribak took the picture with a Pentax KX, 105mm Super-Multi-Coated-Pentax lens and Kodachrome II film, exposed for 1/60 at f/8.

4. Warm yellows and oranges of this African landscape at sunset made the exotic location worthwhile for Jeff Widener, who used a Nikon F2 and 200mm Nikkor lens with Kodachrome II film exposed for 1/250 at f/5.6.

5. Lush foliage and monochromatic greens provided a perfect setting for Richard Todd to photograph with his Calumet view camera and 90mm Schneider lens. He exposed Kodak Daylight 6115 Film for two minutes at f/22.

COLOR GALLERY '76





3



4



5



Build your own system for improving color slide copies: Three gadgets to eliminate enlarging calculations and contrast buildup without special processing

A dozen years ago I was shooting an expensive series of animal pictures in the interior of Alaska with an obsolete Retina Reflex III, when the whole world fell apart. The optics were great, but the works of that particular camera were hooked together with fishing line that was forever stretching or going bad at the wrong time. I'd been working with a 135mm lens, which was the longest telephoto available for the camera, and I'd spent a lot of hours stalking animals to get close enough to even half fill the frame. It all seemed worthwhile when I got within a few yards of a huge caribou just at sunset. I fired off two quick shots before the sound of the camera sent the big bull tearing across the tundra forever, and as I hiked back to the Denali track, I was certain I'd wrapped up the trip with a prize-winning lead shot. And that was when I became an expert at salvaging rotten color transparencies and began developing a series of gadgets to make the job easier.

When I photographed that caribou, I was able to see his big frightened eyes as I focused the camera, and I carefully centered the meter needle in the viewfinder, so in theory nothing much could have gone wrong. The camera, however, did not have through-the-lens metering, and the light from the setting sun had reflected off the chrome-plated barrel of the telephoto lens into the photocell of the meter. My beautiful lead picture was at least two-stops underexposed, and to make matters worse, I had not been as close to the subject as I thought when I pressed the shutter release. By the time I got back from Alaska and Kodak had returned my processed slides, I'd already called my client and told him what great stuff I was bringing.

I used a local color lab that promised to make enlarged dupes and correct the exposure error, but their results were higher contrast than a poster, and the exposure correction was not just zero—the dupes were *more* underexposed than the originals. About the same time a friend tried to break into wedding photography, only to have an electronic flash fail to work properly and leave him with several rolls of badly underexposed transparencies. I watched as he worked desperately to make acceptable copies by using a Honeywell Repronar copier together with special processing of the color film to control contrast and keep the bride's gown from coming out some strange shade of blue-green. That venture sunk his professional photo career, and I have no idea how much I lost on those Alaska slides, but these experiences forced me to come up with a system that made it possible to make improved duplicates from botched color slides and have Kodak do all the processing without any special instructions. Along the way, image enlargement became a simple, fool-proof operation, and I regularly finish off partly exposed rolls with a few slide copies on Kodak Kodachrome 25 Film before mailing them in to Kodak for processing.

Now some of my clients are very picky, and a lot of them would never buy a duplicate slide under any circumstances. At least that's what they think, but their purchasing and publishing clearly tell me that they can't tell my duplicates from originals because they use both quite frequently. Those dupes come back in the standard Kodak cardboard mounts, and there are no telltale dark edges to give them away. So as long as the quality is

BY PARRY C. YOB

there, my conscience is clear.

CONTRAST CONTROL

Unless some control steps are taken, duplicate color slides will be more contrasty than the originals. This is not always bad because sometimes the originals are a little dull, and increased contrast will help them. However, for a perfect original an increase in contrast must be avoided in duplication. If you process your own color transparency film, you can use special duplicating films and special exposure and development techniques, but this article is written for the reader who has to use Kodachrome 25 and relies on Kodak or some other commercial film processor.

PRE- AND POSTFLASHING

For many years Kodak's literature

1. A buffalo in the snow makes a perfect example of a dark object on a light background. Original photograph made on Kodak Ektachrome-X Film.

2. A Kodak Kodachrome II copy with exposure corrected by use of exposure chart and given one postflash with the 2.0 neutral density filter holds detail in snow, frost and dark fur.

3. This original represents a very difficult subject to photograph because bull elk are bad tempered when losing the velvet from their antlers, and an open stretch of water prevented me from working closer to the animal. I failed to account for the fact that my through-the-lens meter does not work with this 500mm Vivitar lens, and overexposed by about one stop. Original was shot on Kodak High Speed Ektachrome Film, push-processed to E.I. 400.

4. Enlarged copy of No. 3 on Kodachrome 25 film, reducing the initial exposure by 1.5 stops to correct for overexposure in the original, then making one postflash through a 2.0 neutral density filter.

5. The same as No. 4, except that the film was given one preflash through the 2. neutral density filter before making the image exposure. Note that there is essentially no difference between the preflashed slide copy and the postflashed slide copy.

6. When the jungle prevented my moving back, I used a fisheye attachment to get original shot of a gold dredge on Kodachrome 25 film.

7. When a client prejudiced against fisheye shots insisted on a rectangular format, I made this copy, enlarging image on Kodachrome II film, which happened to be in the camera when I needed the copy.



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1



2



3



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6



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8

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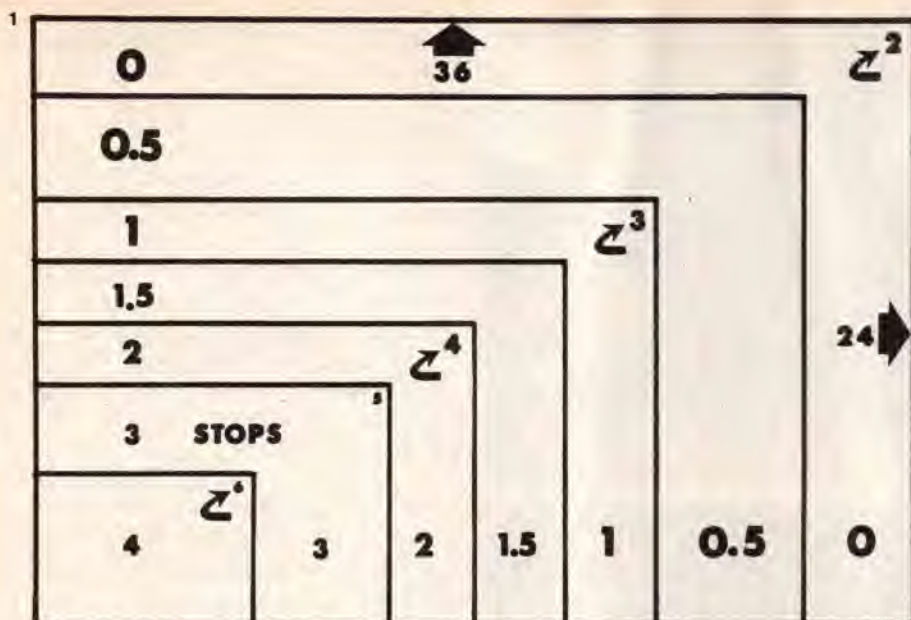
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slide copies

has mentioned preflashing film as a means of controlling contrast, but the application of this technique has been difficult if not impossible for most workers. One Kodak suggestion is to preflash the entire roll by use of a special light arrangement in the darkroom. This means committing an entire roll to duplicates, and the use of a special safe-light is very difficult to control with any degree of accuracy. Preflashing single frames offers much more promise, but most 35mm cameras will not maintain register when double exposing, and even the best will not do it perfectly every time. Since preflashing was the only method that allowed the photographer to use ordinary Kodachrome 25 or similar film and have it processed by the manufacturer's lab by standard methods, preflashing single frames in camera, without loss of registration, became an all-consuming challenge.

The obvious solution was to place the copy stand in a darkroom or closet in the evening, set the camera on bulb, put the No. 2.0 neutral density (filter factor 100) flashing filter on the lens, open the shutter and flash the electronic flash once, remove the ND filter, put a slide on the stand, *while still working in total darkness*, flash the light again manually, then close the shutter and turn on the lights. Since opening the shutter on bulb and flashing the light manually for both flashes insures that the film will not move and lose registration, this technique is very desirable, but it is impossible to carry out with ordinary equipment. In the first place, the 100 factor neutral density filter is available only in gelatin, which



1. Exposure correction chart which is to be copied on color transparency film such as Kodachrome 25, giving two stops more exposure than is indicated by through-the-lens metering system and bracketing exposures in 1/2-stop increments for additional copies. See text for method of using resulting slide for perfect exposures on enlarged copies, regardless of lens, bellows, extension tubes or focal length.

2. To make filter holder for filter arm cut four strips of 20-gauge sheet metal, three inches long and 1/4 inch wide. Bend each to form a tiny 90° angle iron, then solder the four little angle irons together to form a ring. Bend a 1/2x2-inch strip of metal to form a hairpin ring, as seen at the upper left-hand corner of this holder, and attach ring to hairpin ring, using solder or pop rivet. Round hole in hairpin ring is made by forming it around a 1/4-inch bolt. After assembly, cut away bottom part of upper angle to make it narrow as seen here—1/4 to 1/2 inch is about right.

3. End view of filter arm support stand with filter carrier (holder) removed. Note metal arm at top. Also note that a block of wood at left is attached to stationary vertical piece that also contains the 1/4-inch wide slot in which carriage bolt with wing nut slides.

4. Top view with filter holder attached to four-inch strip of 1/2x1/4-inch steel. 1/4-inch hole at one end holds 1/4-inch bolt used to attach filter holder, and two small holes at opposite end allow 1/4-inch No. 8 round-head wood screws to attach metal to movable wood section of stand.

5. Side view of stand with filter holder attached to arm. Notice that two nuts have been jammed together on the 1/4-inch bolt with a washer above them to make movement easy on pivot bolt. In this model steel was tapped (threaded) for bolt, but it could have been held in place with an extra nut on bottom. Notice moving portion is partly raised here.



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you just can't handle in the dark without ruining. In the second place, you can't look through the viewfinder in the dark and see where to place the slide to get it in register, and in the third place, you can't flash most electronic flash units manually without moving them, even if you *could* find the button in the dark. To make things worse there is the business of trying to keep finger marks and dirt off the slide while handling it in the dark.

My solution in the beginning was to build a special stage for my copier that worked much like a mechanical stage on a microscope; this was used in conjunction with the special filter arm discussed later in this article. This solved all of the problems mentioned above when used with the special flashing cord shown here. However, while the special stage worked well on my home-built copy stand, it could not be made so universal that it would work on a Honeywell Repronar, a Bowers Illumitran or every conceivable home-built unit. In addition, there was the ever-present possibility of lint or dust falling on the slide between the time it was used in adjusting the stage and the time it was exposed after the film had been preflashed.

Although I'd seen no mention of it in the literature, either for color or black-and-white work, I could see no reason why *postflashing* would not work just as well as preflashing because its real purpose is to add a tiny amount of light to the shadow areas and counteract the normal contrast buildup. However, since preflashing is also used to increase the ASA rating of black-and-white films at times, I conducted a number of tests to determine just what differences existed between preflash and postflash in slide copying.

ALL PHOTOS BY THE AUTHOR.

6. Side view of stand showing location of nail heads holding block, which keeps moving portion from twisting on carriage bolt.

7. Side view with moving section extended.

8. After painting filter holder with matte black paint, the stand and carrier arm are positioned so that with the carrier properly located under the lens, the filter holder is against bellows rails. This insures that the holder can be rotated to proper position and stopped while working in complete darkness. Stand is then attached to table or base of copy stand by means of wood screws.

9. Author's copy setup—white disk shows position of filter under lens. Pressure adhesive filter frames, from Calumet Scientific, Inc., 1590 Touhy, Elk Grove Village, Illinois 60007, are used to keep Wratten No. 96 2.0 ND filter flat while in filter holder. High-intensity lamp illuminates slide mount so that it can be seen if it comes into camera's field of view when slide is positioned for copying.



10. A good flash tripper cord can be made by fitting an ordinary push-button (normally off) switch into cap of tube for a Polaroid print coater. Switch can be wired to an ordinary appliance cord, and one side of the plug filed down to fit tripper cord outlet of many larger electronic flash units. Suitable conversion plugs and cords can be obtained for flash units using only PC cords that are not removable. See your camera store for these. White patch is strip of fluorescent tape which can be seen in the dark to find tripper switch. This is Spot-Lite, Glow-In-The-Dark pressure-sensitive tape that your camera store can order from Kalt Corporation, 2036 Broadway, Santa Monica, California 90404.

11. Tripper switch assembly open to show method of attaching switch to cap of Polaroid coater tube. A hole is drilled in cap for switch, and another hole is drilled in bottom of tube so that cord can pass through.

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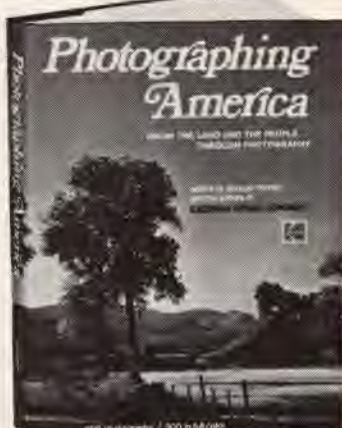
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slide copies

Postflashing has the advantage of allowing the worker to carefully compose and focus his copy slide on an illuminated copy stand (box), then simply slide it out of the way and interpose the ND filter for the second exposure. This operation needs no precision second step and is easily done in complete darkness.

On examining a large number of pairs of duplicate slides made from the same transparencies, I find that there is sometimes a barely perceptible difference in contrast reduction between a preflashed and a postflashed copy. The preflashed will sometimes be a tiny bit less contrasty than the original, and the postflashed copy will have just about the same contrast as the original every time. Thus, if you have an overly contrasty original, it might be to your advantage to use preflash instead of postflash, but with normal transparencies postflash gives excellent results, as can be seen by examining the accompanying photographs. In addition, by changing filters, as mentioned later, you can make huge changes in contrast if this should be needed and still use postflash.

HOW TO DO IT

For postflashing first place your slide on the copy box and carefully compose and focus, using the illumination of your viewing light. Adjust the aperture to suit your electronic flash and degree of magnification and set the camera on bulb. Place a clamp-type cable release on the camera and plug the manual flashing cord into the flashgun. With the No. 2.0 ND filter in the filter arm swing the arm out of the line of view. Now cock the camera and turn off the room light. Open the shutter with the cable release and clamp the release so that the shutter stays open. Now flash the light once with the manual cord and slide the transparency out of the way, handling it only by the cardboard mount. Rotate the filter arm until it hits the bellows rail and places the filter over the open hole in the copy box. Flash the light a second time and release the cable release clamp, closing the shutter. Now turn on the room light and go on to your next slide. The aperture must *not* be changed between the copying flash and the flash with the ND filter!

GETTING THE CORRECT EXPOSURE

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correct exposure for your normal slides when making 1:1 copies, you can skip the next paragraph. However, if you are a beginner or have any doubts, I think you'll find it a valuable and useful discussion.

Once you've built or purchased any copy box, you will have to make a series of exposure tests with the bellows adjusted so that you're getting a 1:1 copy. That is, the copy should contain all of the original slide area right out to the edge of the mount but should not include any of the mount in the area of view. You'll find that most viewfinders cover less than the camera sees, so it will be necessary to have a tiny bit less than the entire original showing in the viewfinder when making 1:1 copies. The use of a top light will make it possible to see any intruding portion of the mount. If you own a reflected-light flash-exposure meter, such as the Calumet, you can take a flash reading through the slide and open up two full stops above the indicated reading for your trial exposure. Otherwise, make a series of exposures on Kodachrome 25 film between f/11 and f/4, changing the aperture 1/2 stop at a time. Keep a written record of the exposures with your standard perfectly exposed original. When your copy slides come back from Kodak, pick out the one in which the exposure most nearly duplicates the original's exposure. Don't just look at the slides on a slide sorter. Project the nearest pair to be sure how they look when enlarged on the screen.

Once you've established this standard exposure by trial and error for 1:1 copies and normally exposed slides, you'll *never* have to experiment again, unless you change film brands or types.

EXPOSURE CHART

Your next step is to place this magazine anywhere the light is even and the page lies flat. Load your camera with Kodachrome 25 film or whatever color brand you use. Focus your camera on the exposure chart so that the chart's outline just fills the frame of your viewfinder. The lines with the arrows marked 24 and 36 should be at the upper and right edges of your viewfinder, respectively; the lower left-hand corner of the rectangle marked 4 should be in the lower left corner of your viewfinder. Take an exposure reading with your through-the-lens metering system, then open up two full stops and shoot. You might try bracketing one-half stop more and a half-stop less. When your chart copies come back from the color slide processor, you'll have a foolproof way of cor-

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USING THE CORRECTION SLIDE

Place the slide to be enlarged on your copy stand and adjust the bellows, etc., until you have only the portion of the slide that you want filling the viewfinder. Temporarily remove the original from the copy box and substitute the exposure correction slide. Move the correction slide around until the lower left-hand corner of the transparency is at the lower left corner of your viewfinder. The rectangle with the 4 in its center will now be in the lower left corner of your viewfinder. The right side and the upper edge of your viewfinder will now cut off part of the correction slide from view, and you will be able to see the numbers—0, 0.5, 1, 1.5, 2, 3 or 4. You will see these numbers both along the bottom edge and along the left edge of your viewfinder.

If you see that the camera sees almost the whole slide so that the number 0 is seen in two places, you need apply no exposure correction to your standard 1:1 copy exposure. If the edge of your view includes the area marked 0.5 or any portion of it, you must open up your lens by $\frac{1}{2}$ stop. If the area marked 1 or some part of it is included in your view, open up one full stop above your standard exposure. If only the small rectangle with the 4 can be seen, open up four full stops above your standard exposure for a 1:1 copy.

The numbers in the corners with the curved arrows pointing to them indicate the total exposure correction, which includes the two full stops allowed for 1:1 copies. These numbers are for use with flash exposure meters. If a flash exposure meter reading is taken by flash through the slide, these numbers indicate the number of stops you must open above the meter reading for a perfectly exposed slide when the area within the marked rectangle is filling your viewfinder. In other words, if you get a flash meter reading showing that the exposure should be made at $f/8$, and your viewfinder includes the area with the curved arrow pointing to the 3 in its corner (the rectangle marked with two large 1s), you must open up three full stops and use $f/2.8$ for your copy exposure.

The focal length of the lens you use makes no difference nor does it matter whether you use a bellows, extension tubes or even a macro lens—the chart works the same way for all of them.

The only things it *does not* work with are close-up lenses such as +1, +2, +3, etc.

WHAT ABOUT ABNORMAL SLIDES?

Whether you are making 1:1 copies or enlargements, from time to time you encounter originals which are over- or underexposed. Those which are extremely overexposed will usually be difficult to make perfect, because overexposure wipes out detail and leaves clear areas on the original. Underexposed slides which originally were shot of subjects containing no large or important dark areas are usually easy to improve, and almost every underexposed slide can be helped. Examine your abnormal slide and estimate the amount of over- or underexposure in f-stops. Then double this for your correction. If you estimate that an original is one-stop underexposed, give it two stops more exposure than you'd give a normal slide for copying at the same degree of enlargement. If your original looks to be one-stop overexposed, give it two stops less exposure than you'd give a normal slide for copying at the same degree of enlargement.

BUILDING THE FILTER ARM AND STAND

The purpose of the filter arm is to interpose the 75x75mm No. 96 2.0 ND Kodak Wratten gelatin filter between the lens and the light source used to copy the slides. It should be adjusted so that the filter is as high above the level of the slide as is possible without the arm striking the lens. The lens is focused at the level of the slide so the filter will be completely out of focus in this high position, and any lint or dust that falls on the filter or any scratches which mar the filter will not show on the copy.

The filter arm is swung out of position while focusing and left out while the initial exposure is made. It is then swung in until it hits the bellows rail or some other stop, and the flash exposure is made with the slide removed and the filter in front of the lens.

The photographs and their captions clearly show how the unit is made, and the stand for the arm must be made to suit whatever copy box or machine you have, using the design shown here. The dimensions for the stand and the length of the metal arm that holds the sheet-metal filter holder will have to be tailored to suit your own machine.

If you want to duplicate the author's copy setup, you can refer to "Build Your Own Slide Copier" in the February, 1974 PhotoGraphic for a complete description of its construction. □



PHOTO BY BARRY JACOBS.

Can a Fisheye Change Your Life?

A New View for Snapshotters

By Lou Jacobs, Jr.

□ Wide-angle lenses are very useful optics, and the first time you shoot with a 35mm or 28mm focal length, the effects may be exciting or at least interesting. When you mount a 24mm or 21mm lens on your 35mm camera, things begin looking unusual. You immediately realize how much more of a scene such a lens covers when compared to a normal lens. Even more noticeable may be the extended depth of field offered by the wide-angle.

I've enjoyed using 21mm, 24mm, 28mm and 35mm

lenses for a variety of journalistic assignments as well as for personal pictures. Sometimes a wide-angle is necessary in tight spots or for pictorial emphasis, and occasionally I've used one for the shock value of intentional distortion or for eye-catching deep focus. You must be careful not to focus too closely to a face, or it takes

on a bizarre, all-nose effect, but this phenomenon can be amusing in the right circumstances.

Despite my extensive optical opportunities, I've long admired pictures taken with super-wide-angle fisheye lenses. A focal length shorter than 20mm on a 35mm format is considered a fisheye. Until a few years ago, most of these lenses produced a circular image, which is distinctive but quite limiting. Improvements in optical design have made

Can a Fisheye?

SPECIAL FEATURES

possible full-frame fisheyes with no vignetting; though negatives and slides made with them are still recognizable by their barrel distortion. Both horizontal and vertical lines near the edges of the frame are usually bowed outward like barrel staves. The effect may seem annoying at first, but it can become an unusual visual advantage.

It should also be mentioned that there are rectilinear super-wide-angle lenses which do not produce barrel distortion, but these cost a lot more than the fisheye type and are much bulkier due to large corrective lens elements. While many of these optics are outstanding for applications such as architectural interiors and exteriors, they're not the ones I prefer.

For years I've wanted to shoot with a fisheye lens (if not actually to own one) for practical purposes as well as to experiment with the odd and curious images it makes. A few months ago my dream came true, and my first impression was that a fisheye lens would indeed change my life! It will not take the place of yoga, multivitamins or a large inheritance, but through a fisheye, my world will *never* be the same.

The first vision I had through a 15mm Hexanon lens on a Konica nt-3 was from the driver's seat of my Fiat sedan. Imagine—I could take in the entire windshield, the instrument panel and everything on the streets ahead with no effort! From that moment on, I decided to take many fisheye trips. I've bent buildings, and super panoramas have appeared on demand. With the 15mm I could include most of an oceanarium's audience watching a whale show many yards away with the horizon as sharp as the people a foot or so away.

Fisheye depth of field is so inclusive that a mere 4mm space separates the three-foot mark from the infinity mark on the Hexanon depth-of-field scale. This lens is typical of fisheyes; it focuses to six inches with a quarter turn of the focusing ring. Its widest aperture is f/2.8, and it sports four built-in filters: Y52 yellow, R60 red, B8 blue and a skylight. Unlike some fisheye optics, the Hexanon also has a permanent token lens shade along the horizontal axis of the camera. (More would cut into the frame.)

In my comparative investigation I also used a 16mm Zuiko fisheye on the Olympus OM-1 and OM-2. It's an f/3.5 lens, half as long and heavy as the Hexanon, with yellow, red and skylight filters that quickly twist into place. The optical quality of the fisheyes seems equal, and each symbolizes the most popular focal lengths affordable by average single-lens-reflex owners. There are shorter lenses listed in the accompanying "Buyers' Guide," but they are also larger investments.

So what subjects does one choose to photograph with a fisheye lens to make the most of its rather unusual point of view? Just about anything you wish—just remember to frame carefully, or you'll end up with your hands and feet in your shots.

APPLICATIONS

Depth of Field: You can achieve sharpness from foreground to background with just about any lens if you move back far enough, stop down to the smallest aperture and use an appropriately slow shutter speed. The shorter the focal length, the easier this is, but with a fisheye lens, it's ridiculously simple. However, to exploit the fisheye's depth-of-field capacity most effectively, it's important to have an interesting foreground. Try to avoid

2



3



1. An exaggerated portrait showing the fisheye's distortion characteristic was made with 16mm Zuiko lens on an Olympus OM-1. Camera was held about five inches from subject's eye.

2. The fisheye's curving ability and its peculiar perspective are dramatically illustrated by this shot; figure added for scale. Camera was a Konica Autoreflex nt-3 with 15mm Hexanon lens.

3. Foreground fence adds pictorial interest and shows "barrel" distortion of full-frame fisheyes. Camera was an Olympus OM-2 with 16mm Zuiko lens.

4. A 15mm Hexanon lens on the Konica Autoreflex nt-3 made a very small room seem very spacious.

All photos taken on Kodak Tri-X Film, rated normally and developed in Microdol-X.

empty foregrounds to make pictorial points using super depth of field.

Peculiar Perspective:

Since a fisheye bows straight lines, take advantage of this unusual distortion effect for offbeat images. The shot of the office building curving skyward illustrates my point (See photo No. 2). I backed away far enough to include the whole structure and added a figure for scale. No other type of lens can make this visual statement.

Distortion: My son made

FULL-FRAME FISHEYE BUYERS' GUIDE

FOCAL LENGTH	NAME	FITS CAMERAS	F-STOP RANGE	MIN. FOCUS IN INCHES	DIAPHRAGM M=Manual A=Auto	DISTRIBUTOR	PRICE
14mm	Mamiya/Sekor Auto SX	Mamiya: MSX-500, MSX-1000, DSX-1000, Auto-X 1000 (w/P adapter)	3.5-16	12	A	Bell & Howell	\$349.50
15mm	Canon Fisheye FD SSC	Canon SLRs	2.8-16	10	A	Canon	\$525
15mm	Hexanon Fisheye	Konica T Series	2.8-16	5.9	A	Berkey	\$450
16mm	F-Distagon	Contax, Yashica FX-1	2.8-22	12	A	Yashica	\$645
16mm	EBC Fujinon-F	Fujica SLRs	2.8-16	7.8	A	Fuji Photo	\$455
16mm	Elmarit-R	Leicaflex SL-2	2.8-16	12	A	E. Leitz	\$750
16mm	Rokkor-X	Minolta SLRs	2.8-16	10	A	Minolta	\$350
16mm	Auto-Nikkor i.G. Fisheye	Nikon, Nikkormat	3.5-22	12	A	E.P.O.I.	\$569.50
16mm	OM System Zuiko Auto-Fisheye	Olympus OM Series	3.5-22	7.9	A	Ponder & Best	\$549.95
16mm	Rollei HFT* F-Distagon	Rollei SL-35, SL-35M	2.8-16	12	A	Rollei of America	\$398
16mm	XQ Sigma	Canon, Pentax ES, Konica T, Minolta, Nikon, Pentax, Olympus OM, Voigtlander, Rollei, Pentax K	2.8-22	6	A	E.P.O.I.	\$295
17mm	SMC Pentax	Pentax K	4-22	7.8	A	Honeywell	\$340
17mm	SMC Takumar	Pentax/universal thread	4-22	7.8	A	Honeywell	\$319.50
17mm	Soligor-Auto	Pentax, Nikon, Minolta, Canon, Olympus, Konica	3.5-16	8	A	AIC Photo	\$299.50

Note: Fisheye conversion lenses were omitted from this chart due to the fact the "fisheye effect" varies with the focal length of the prime lens being used.

Information and pricing as accurate as possible at time of publication but subject to change without notice.

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Santa Monica, California 90406

Rollei of America, Inc.
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Yashica, Inc.
50-17 Queens Blvd.
Woodside, New York 11377



the most of the fisheye's distortion characteristic when he photographed a friend at school with a 16mm Zuiko lens on an OM-1. He focused precisely on the boy's eye in the center of the frame, at which position the lens was only a few inches from his victim. By stopping down to f/16 and using Kodak Tri-X Film, he could shoot at 1/60 second for this libelous portrait (See photo No. 1). Any warning about shooting people-pictures with a

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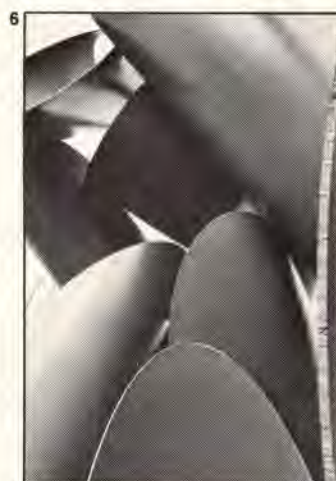
Can a Fisheye?

fisheye has to be taken with personal reservations. Do what you please if the consequences are suitable—in other words that means I wouldn't photograph

away; it's especially useful when you can't move any farther away from your subject. My artist friend Nolan Patterson and his wife were photographed from the corner of a relatively small room that looks a lot bigger



15mm



21mm



PHOTOS BY THE AUTHOR EXCEPT AS INDICATED.

my wife close up, but *your* wife may be fair game!

All-Inclusive: A more obvious fisheye function is its capacity to capture an enormous expanse in the finder from a limited distance

through a 15mm lens (See photo No. 4).

In many cases a 21mm or 20mm lens is plenty wide enough for the all-inclusive point of view, but a fisheye "sees" the world uniquely, as it did from the prow of a

33-foot sailboat. There's a decorative touch in the way the sails and ropes relate, available only with a super-wide lens (See photo No. 8). You have to search for subjects and camera angles that cannot be



135mm

5.-7. These three shots of a steel sculpture by Alexander Leiberan show comparative perspective differences between 15mm, 21mm and 135mm Hexanon lenses on a Konica Autoreflex nT-3.

8. Relationship between forms is changed drastically when photographed with a fisheye. This sailboat is only 40 feet long but looks like a yacht. Photo was taken with Olympus OM-2 and 16mm Zuiko lens.

compacted as well by any other means on a 35mm frame. Then stalk the scene, bobbing and weaving with the camera to your eye, looking for unconventional views or visual extremes that work.

Has a fisheye lens changed my life? Not literally, but it certainly has increased my photographic vision. The super-wide lens is not appropriate for everything I shoot, but when there's time, I mount a fisheye on an SLR and peek at the strange illusions it creates. Too often, the finder is devoid of fisheye subject matter, but with the proper foreground, or when a wide expanse of subject or intentional distortion are apt, there's no substitute for a lens in the fisheye category. I can almost guarantee that the fascination of the fisheye will lead you to new and more curving horizons. □

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(Continued from page 33)

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The Lighter Than Air Society is celebrating its 25th Anniversary with a photo contest; winners in each category will receive a year's membership and \$25, and photos will be published in *Buoyant Flight Magazine*. There are five categories in which photos can be submitted: gas balloon, hot air balloon, blimp, all new hybrid vehicles (LTA craft) and LTA related. All entries must be taken between January 1, 1976 and July 1, 1977; deadline for all submissions is August 30, 1977. Write to The Lighter Than Air Society, 1800 Triplett Blvd., Akron, Ohio 44306, for further details.

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OTHER VOICES

(Continued from page 6)

the numerator?), I wrote the information on the edge of a 3x5 card. I used rubber cement to fasten this to the tape, then I trimmed and covered it with Scotch transparent tape for protection.

Now I can go from 8x10-inch to billfold-size prints in a minimum of time and know that my exposures will be exact.

Thomas L. Hirsch
Winona, Minnesota

SMALL TO LARGE

Thank you for your March, 1976 article, "Calculator in the Darkroom." I used the formula, and it worked very nicely going from 4x5 to 8x10 and other smaller to larger combinations.

I tried using the same formula going from a large- to small-size print, and naturally, it didn't work. Not being too well-versed in the art of mathematics, I was not able to work out the appropriate formula for larger to smaller prints.

If there is such a formula, I would appreciate it, as would, I'm sure, your other readers.

William G. Kaufhold
Pequannock, New Jersey

In answer to Mr. Kaufhold's letter and to any other readers who may be confused by our article, "Calculator in the Darkroom," I submit the following explanation: In order to use Newton's Inverse Law formula for determining new exposure times for a smaller print, simply use the same formula. To illustrate, suppose you've printed an 8x10 14 inches from the easel at 12 seconds. Now suppose you set up for a 4x5 at seven inches from the easel. What will the new time be?

Remember that the formula is New Distance divided by Old Distance times itself times the Old Exposure Time. The New Distance is seven inches; the Old Distance is 14 inches; the Old Exposure Time is 12 seconds. Substituting into this formula gives seven divided by 14 times itself times 12 seconds equals three seconds. Simple!

Mr. Kaufhold, thank you for your interest. You need only the one formula as outlined in the article. I hope this clarifies the mathematical procedure for you.

—Dick Claassen, Tama, Iowa.

JUNK MAIL?

PhotoGraphic Magazine is a very progressive publication—it's been getting progressively worse by the month. I've just received the May, 1976 issue, and in all the years I've been reading the photo magazines, I've never seen such a collection of junk. Was this a dummy issue you had made up and mailed by mistake?

This issue seems to be made up of excess Camera 35 material. The PSA

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Journal is bad enough, but May Photo-Graphic is even worse. How about extending everyone's subscription a month to make up for it?

Russell Canton
Buffalo, New York

CIBACHROME CALIBRATION

I know I am echoing other letters you have received, but you have the best photography magazine around. I've found a great deal of useful information and tips since turning to Photo-Graphic. The article, "Calculator in the Darkroom," in the March, 1976 issue has saved me a great deal of time and money. I'm printing Cibachrome, and the system outlined in the article works exceptionally well.

I marked my enlarger support rail in 1/4- and 1/2-inch increments from easel surface to lens. This eliminates measuring every time I focus and lets me quickly reset to make additional copies later. Paper waste has been greatly reduced, and my color saturation at any size is right on the money. Thanks again for a great magazine.

Mike Crump
Medford, Oregon

SELECTIVE VISIONS

After reading and viewing the March, 1976 portfolio, "Roger Buchanan: Visions of an American Landscape," I wonder why, after he took the trouble to sandwich two negatives together to get that great effect on page 52, he printed the negative backward? In my opinion it takes away from the photograph's impact.

Rick Auer
Montrose, California

I was quite taken by the March, 1976 portfolio, "Roger Buchanan: Visions of an American Landscape." It was well presented, and I had no idea scenes like this still existed in this country. If it weren't for people like Mr. Buchanan and his camera, we would never be aware of this land and all we have.

It's very helpful to have the technical information printed below each picture, but I know from my experience in photography that the information given for the photo on page 52 didn't tell all. It read: "Technique: Photo sandwich." Now really, how many people do you think believed that? It should read: "Technique: Photo sandwich, printed backwards." Now let's tell it like it really is!

Russell D. Larke
Fargo, North Dakota

Circle one: a. Symbolizes a backward world; b. artistic license; c. I don't get enough mail; d. better graphic design; e. I made a mistake.—Roger Buchanan, Phoenix, Arizona.

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110 PHOTOGRAPHY

KALTON C. LAHUE

HOW TO FIND "WHERE THE ACTION IS"



□ It seems that the only way to keep informed with what's happening on the American photographic scene these days is to read the foreign press and trade journals.

For example, did you know that Kodak has announced success in developing an instant 35mm color film or that Japan is Kodak's second largest photo market? Both fascinating tidbits come from Nihon Keizai Shimbun (*Japan Economic Newspaper*), as reported in the January, 1976 *Japan Camera News*.

If the story is indeed true, it should be interesting to see when and if an instant-format 35mm color film will be made available as well as the camera to use it. Could it be that Kodak plans to reactivate its long-defunct 35mm camera line? Or will it be in the "Super 35" (115 format) which the English photo journals seem to feel is just around the corner? After all, Kodak has unloaded millions of 110 cameras and much film in the past four years, and another new format can only add more shekels to its coffers. Will the new film produce a negative as well as a print or just a slide? And what of instant 110 slides? Ah so, Kodak's PR men just aren't talking, at least not to the American press.

Speaking of instant slides, visit your local dealer right now for instant bargains in 110 slide projectors. First, he'll have to dust them off, but then will he ever deal! While all the world seems to love 110 prints, it apparently doesn't give a hoot about 110 slides. According to those dealers to whom I've talked (after they stop sputtering), there's universal apathy over 110 slides and, consequently, 110 slide projectors. It's an understandable but unnecessary shame.

Most dealers excuse their dusty inventory of unsold 110 projectors in the same way—slide addicts are 35mm addicts and already have a 35mm projector. Those who do bother to take 110 slides are more apt to buy a short focal length lens than fool with the new small mounts and a second projector. Admittedly, those 30mm slides can be a nuisance to handle until you've become accustomed to them, but there's no way to really appreciate the advantages of

the specially designed equipment until you've thrown the little 13x17mm slides on a screen with a 110 projector.

Fitted with probably the finest optics ever put on any American slide projector, the Kodak Pocket Carousel projectors produce a slide show of amazing clarity and crispness (providing a decent 110 camera is used), which not only equals but often surpasses 35mm. Then there's the Hanimex Rondette 110 projector with its unique semimotion capa-



Rochester will not import the Tele-Instamatic 430. Having educated the mass market to demand "point-and-shoot" cameras, it fears that the 430 would flop as badly as the Kodak 500 Instamatic of the mid-'60s. If you want exposure control, you'll have to pick one up overseas.

bility, something that has to be used to be appreciated, but like the Pocket Carousels, nobody ever does. As frosting on the cake, there are 110 projectors from Europe by Leitz and others whose market research arms must be hurting something awful—notice how the Japanese have stayed out of the 110 projector business? So for those readers who feel that 110 is the wave of the future, now is the time to buy, buy, buy! One of these days, the rest of the world is going to wake up, and when it does, the bargains will be gone.

Those who view the 110 format as more than just another means of turning out fuzzy snapshots have longed for creative control instead of the electronic sophistication blessed upon the point-and-shoot crowd. I thought we finally had it last year in the Regula Miniking LK, until Kalimar decided against distributing the match-needle 110 in the U.S. As you read here last month, the big news this year in 110 cameras is the arrival of the 110 single-lens reflex-zoom era, stealing the thunder from Kodak's Tele-Instamatic 708.

Fitted with a 25mm, three-element f/5.6 prime lens, the 708's optical system also includes a four-element converter lens which swings into place to form a 43mm, seven-element f/5.6 optic for tele-pictures. Its electronic shutter is controlled by a silicon cell and ranges from 1/30 to 1/300, but before you get too excited, be advised that the lens has only two apertures—f/5.6 and f/9.3—and that the 708 uses the awkward Flipflash or equally cumbersome Ektron EF (and where did the pocket camera go?).

Now don't groan too loudly—as the point-and-shoot Tele-Instamatic 608 has

proven far more popular than any of the Trimlite series introduced last year, Kodak apparently felt that upgrading the product would open another entire market. After all, this "model-change-for-model-change's sake" and "let's sell all the cheapies we can, then hit them with an improved model" philosophy is at the heart of our economic system these days, and Kodak is only giving you what you expect, or is it?

Rumor has it that all Kodak product

design originates in Rochester. If this is really true, Kodak AG (Germany) shows a surprising independence of mind in applying the basics to its finished products. You see, the Tele-Instamatic concept is also popular in the overseas market, and Kodak AG introduced its 330 last year—essentially the same camera as the 608. But at the same time, a 430 was also introduced, some eight months before the 708 reached dealer shelves here, and you guessed it—the 430 uses a three-element f/5.6 Reomar prime lens with a four-element converter for tele-pictures.

But there's a big difference—the 430 has an electronically controlled manual exposure system. Its f/5.6 lens can be stopped down to f/8, f/11 or f/16, and the shutter set for speeds of 1/50 or 1/100 second. You cannot simply "point and shoot;" the aperture selector lever must be moved until the red LED in the viewfinder goes out, making it the equivalent of a match-needle camera. For those who do not care to use the EF hot shoe (Kodak AG makes a nice, compact flash to match), a neatly hidden Magicube socket is provided.

I first came across announcement of the 430 in *Australian Photography*, and watching the English photo mags closely, purchased one from Pictorialist Eurofoto Centre, Ltd., for the respectable sum of L40.01, which included air delivery 12 days after placing the order. Tests to this point indicate that the plastic lens is one of the best fitted to any Kodak pocket camera. Which only goes to prove that if you want to be in creative control, you can't depend upon the mass-market manufacturers to help you reach your goal. □

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127, 120, 620	12	3 1/2 x 3 1/2	2.55	3.85
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(Continued from page 22)



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BICENTENNIAL NEWS



Two years of research have resulted in *The Newark Museum's* major Bicentennial contribution, **Making Movies in New Jersey**. The exhibition tells the story of New Jersey's days as the movie capital of the world and the location site of many famous silent films.

New Jersey was also the birthplace of much vital moviemaking equipment. In 1893 Thomas Edison patented a corn-operated viewing machine called the Kinetoscope. Films were produced for this apparatus in the world's first movie studio, the Black Maria, located on the edge of the West Orange laboratory.

The Kinetoscope case, a mock-up of the Black Maria and other movie memorabilia (including a series of Eadweard Muybridge's horse-in-motion photographs) are also displayed. Other devices on exhibit are magic lanterns, thumb flip books and the Mutoscope (a flip card device marketed by Edison's first major competitor, the American Mutoscope Company). Visitors will be able to watch early Charlie Chaplin skits and a western with William S. Hart on the Mutoscope.

Many New Jersey-made films will be projected in a gallery converted into a period movie theater. Special continuous viewers will present early short films. In addition, there's a special section covering the production of films featuring early directors and artists, their movie stills, publicity photos and fan magazine tributes. The Museum will hold a series of weekend matinees, lectures by specialists on the silent era and special film series. A catalog, *Making Movies in New Jersey*, is also available.

The exhibit has been made possible through grants from the National Endowment for the Arts, the New Jersey State Council on the Arts, the Charles Edison Foundation and Mrs. John E. Sloane, daughter of Thomas A. Edison. The Newark Museum is located at 49 Washington Street and is open from 12 noon to 5:00 p.m. Monday through Saturday; 1:00 to 5:00 p.m. Sundays and holidays. The exhibit is free to the public and will continue until January 1977.

Please address all submissions and releases for "Bicentennial News" to Bicentennial Editor, c/o Petersen's PhotoGraphic Magazine, 8490 Sunset Blvd., Los Angeles, California 90069.

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PICTURE-TAKING FREEDOMS AND RESPONSIBILITIES

"How important are model releases for publishing and gallery showing of work that contains recognizable people? What, for instance, does one do when shooting in a crowd? For 'street' shooting the model release is an albatross hanging around the photographer's neck. Do you recommend the subject be approached before or after the shot? Also, can photographers use 'homemade' releases? The printed ones sold in photography stores look as if they would intimidate people."—Hedy Winter, Miami, Florida.



□ Your questions involve too many complex considerations, Hedy, to answer fully. What I do recommend, though, is a new book on this and many other related subjects: *Photography:*

What's The Law? by Robert Cavallo and Stuart Kahan, published by Crown Publishers, Inc., New York (\$9.95). When you read this long-needed book, you will find that you are not entirely free to pick up a camera and photograph any subject without due concern. That familiar phrase "ignorance of the law is no excuse" applies as much to photography as to any other sphere of activity.

Cavallo and Kahan cover the full spectrum of the law as it applies to photography, from restrictions in law limiting what may be photographed to who really owns a photograph. They devote an extensive chapter to what you are free to do with the photographs you make, and from that starting point they then explore the model release: what it is, how to use it and the kinds of situations that require one. The protections a photographer has under the law, including the copyright, are discussed fully. There are also chapters dealing with obscenity, book publishing, losses and damages, agents, studio photography, misrepresentation and the "other media."

All of this may seem to have importance only for the full-fledged professional, but don't be misled by such an assumption. Even if all you might envision is entering a photo contest or local exhibition, you still should be as thor-

oughly aware of the contents of *Photography: What's The Law?* as any pro—if you want protection from stumbling into legal hassles.

Fortunately, Cavallo and Kahan left their legalistic lingo in the courtroom when they collaborated to write this book. It is concise and very easily read. The law is explained in simple, easy-to-understand language. The authors cite numbers of court opinions and statutes, along with presenting many cases which serve not to befuddle the reader's head but rather to make an overwhelming impact. The importance for all of us in photography to become conversant with the legal ramifications of all our activities is convincingly driven home.

To make the book even more than an invaluable source of information the authors have generously included sample legal documents: sample releases, business forms and contracts. They will, no doubt, be lifted for the personal use of many photographers who will want to design and prepare their own forms.

You may ask where all this free legal advice is coming from. Who are Robert



Photography: What's the Law? is a new, concise, well-written book of valuable information that can protect a photographer from floundering into legal difficulties.

Cavallo and Stuart Kahan? As an active member of A.S.M.P. (American Society of Magazine Photographers), I can personally attest to Robert Cavallo's dedicated involvement as our organization's legal counsel. As well as serving this group, consisting of many of the country's leading photographers, he also represents many individual photographers. Stuart Kahan brings to the book experience as a writer as well as expertise gathered from a long legal career in the employ of a major theatrical agency and motion picture studio.

Even after reading *Photography: What's The Law?*, I wouldn't presume to tell you when you need to get a model release. Because, however, PhotoGraphic does require releases on all recognizable persons in a photograph for publication, and because I have found that so many photographers who contribute to the magazine aren't aware of this requirement, I would like at

least to make a few suggestions.

It's always better to be safe than sorry, especially if it may result in your being sued for invading someone's privacy. Your best insurance is to get a release signed by everyone you photograph at the time you take the picture. I know too well that this may present a hardship in many situations, but it may be less of a hardship than being limited in what you can do with a picture at some future date. At the time you take the photo you have no way of knowing what potential the image may have. It could become a prize winner!

I agree that any legal form has the tendency to put people off these days, but again that should not deter the use of the release. Your thought about making your own release is a good one in this respect—if you keep a few things in mind. A legal document that will protect you adequately must conform to language that would be acceptable to a court of law. As far as wording goes then, you don't have much freedom to design an original release form. What you can do though is make the design, the form's graphic appearance, far less formidable.

There is no reason why an artistically handwritten or hand-printed document couldn't be made up on an attractive paper. If the language is correct, colored ink on colored paper wouldn't make the form any less binding in court. A personal touch used by many photographers is to print the release on their personal letterhead stationery.

How and when you present the release to a subject for signing on the dotted line is a very individual matter. I have approached the problem in a variety of ways before and after the picture taking and can honestly say there are no rules or valid generalizations. Both approaches (before and after) work. Of course, the situation may be such that you have to shoot first and ask questions later to capture a spontaneous moment. Otherwise, it may be wise to at least broach the subject of the release before exposing any film, if for no other reason than just to prevent your wasting time and film.

The jist of my recommendations may seem conservatively cautious, but I can see no reason, other than the loss of a chance for a truly spectacular picture, for any photographer to avoid getting any needed permission. It wasn't too long ago that I was run off an area I thought was public property by an irate farmer with a shotgun because I was too lazy to drive up a short road and knock on a door. I have learned by such experiences, and from the many horror stories told by colleagues and by Cavallo and Kahan in their excellent book, that being cautiously conservative beats being a smart... □

Compare the advantages. FTb is the obvious choice.

We think that the FTb is the best camera in its class in the world. It earned this distinction. It has solid value. Meticulous construction and quality. It has

the kind of refined performance features, versatility and human engineering you'd expect from Canon. But don't take our word for it. Decide for yourself.

● Exposure Metering

Any photographer serious about precision in exposure knows that it's vital to understand the exact area of the subject that the camera's metering. The spot metering system of the FTb measures only the central 12% of the viewfinder area. In difficult

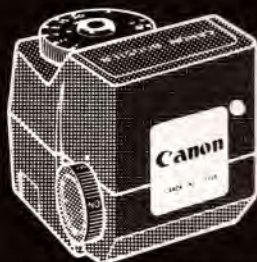
exposure situations, you never have to doubt that your exposures will be perfect.

● Breech Lock Mount

The lens mount of the FTb and all Canon SLR's is the exclusive Breech Lock system. When you push a lens, the breech lock ring automatically turns slightly. All you have to do for a secure fit is turn the ring a little more. And because there's no turning between lens mount and body, there's no wear to affect sharpness.

● The Viewfinder

The FTb's viewfinder has everything you need to stay in complete control. It shows shutter speeds, over- and under-exposure warning marks, a stopped-down metering index and meter needle and aperture indicator ring. The bright focusing screen has a microprism focusing aid, and the metering area is shaded, so you never have to guess what you're measuring.



every job from photomicrography to astro-photography makes the FTb a camera a novice can grow with—or a pro can stick with.

● Flash Photography

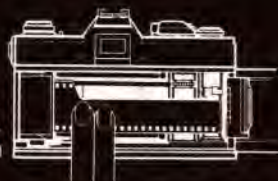
The exclusive CAT (Canon Auto Tuning) system for automatic electronic flash couples both to selected FD lenses and the camera's metering system. To use it, just focus and align meter needles as usual. Whatever you've focused on will be precisely exposed. Period.

● Versatility

The unique FTb Booster lets the FTb read down to an exposure level of $f/1.2$ at 15 seconds with ASA 100 film (EV-3.5)! This coupled with the host of Canon accessories for

● Film Loading

The FTb incorporates Canon's exclusive QL quick film loading system. All you do is position the film leader, close the back and start winding. It saves time and prevents film waste.



● Lenses

The FTb accepts all of the nearly forty superb Canon lenses, from 7.5mm Fish Eye to 1,200mm Super-Telephoto. These lenses are tops in



sharpness, contrast and mechanical quality. They incorporate all of the latest optical refinements, including Spectra and Super Spectra Coating, the Canon Floating System and the most modern optical glasses.

● Control Flexibility

The FTb's Stopped-Down/Self-Timer lever activates the self-timer and stops the lens down for checking depth-of-field. Adjacent controls can lock the aperture and lock up the mirror.



Canon® FTb

The Kodak gallery.



1.

2.



3.



Here is more than black, more than white. Here is richness, depth, feeling! A few of the many moods of life as viewed by creative photographers taking advantage of the versatility of Kodak black-and-white films.

1. "Ace in the Hole," by Robert F. Johnston of McComb, Miss. Shot on Kodak Plus-X film because of this film's good latitude and all-round versatility. 2. "Shadows," by Howard E. Marlin of Ashland, Ky. Shot with early-morning backlighting utilizing the low-light capabilities of Kodak Tri-X film. 3. "Debutante," by William F. Rogers of Ithaca, N.Y. A study in spatial relationship and enclosures, which illustrates the fine grain and sharpness of Kodak Panatomic-X film.



Kodak film.
A variety of beautiful choices.